PBmonitor

User Manual

Version 1.0 / 31.07.2015 / 17:23

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Dear customer

Thank you for using PBmonitor!

Do you know exactly what happens to your hosted files? Can you be sure that nobody is changing the files on your webhost and takeover the control of your websites, web applications or CMS? Maybe you have also client information stored on your host! PBmonitor can help you to protect your valuable files and get alerted if someone or something is modifying those files!

The faster you are informed the better, don't make it easy for intruders to get your information! If your host is compromised, at least you will know it fast and can react! I hope that PBmonitor will help you to protect your information and give you some peace of mind! I hope you will like this application!

This manual will show you how to get started with PBmonitor. It provides detailed step by step instructions so that it will be easy for you to install, configure and use this application.

One of our objectives is to provide superior support, so that we have happy customers. Therefore, if you have questions or problems while installing or using our software, please do not hesitate to contact us!

Sincerely

Patrick Biegel

1 Introduction

The PBmonitor tool is a software for monitoring all file changes inside the subfolders of your web root directory. It can help you to protect your webhost and the files stored there. Constant monitoring will detect all file modifications and can alert you via e-mail. The monitoring process can be scheduled with a cronjob and run all 15 minutes (you can specify the time). It's possible to create different jobs which can run at different times and monitor different directories. If a file modification is detected, an email alert can be sent to the user with a link to the administration panel. The logfiles will protocol all the changes. The tool was made with the Bootstrap framework and therefore is fully responsive and can be used on very different devices like desktop computers, notebooks, tablets and smartphones.

2 Features of PBmonitor

Some of the features of the PBmonitor tool are:

- ✓ Monitoring web files for changes.
- ✓ Helps to protect your valuable files!
- ✓ Sends email alerts if changes are detected.
- ✓ Fully responsive user interface (Admin panel).
- ✓ Integrated configuration Editor and logviewer.
- ✓ Bootstrap and jQuery powered for an easy management.
- ✓ Fully customizable PHP / HTML / CSS / JavaScript code.
- ✓ Login function with timeout and delay after failed login.
- ✓ Manual and automatic (cron) execution of monitoring processes.
- ✓ Process scheduling with cronjobs (one per configuration).
- ✓ Logging of processes, file changes and logins.
- ✓ Detailed user manual in PDF format (71 pages / 2.5 MB).
- ✓ Easy to install and configure (copy, permissions and cronjobs).
- ✓ Very well documented PHP / JavaScript code.
- ✓ Small and lightweight installation.
- ✓ Low hard- and software requirements.
- ✓ No MySQL (or any other) database is required.

3 System Requirements

PBmonitor has very low hard- and software requirements. You can use the little checklist below to see if your hard- and software meet the specific needs.

3.1 Hardware

- Internet access
- Linux, Unix or Windows based webserver like Apache
- PC, Notebook, Tablet (for configuration)

3.2 Software - Host

- FTP access to your webserver (for installation)
- Possibility to change directory/file permissions on host
- Possibility to password protect directories (optional)
- Possibility to schedule scripts with cron (cronjobs)
- PHP version >= **5.3** installed
- PHP '**max_execution_time**' set to at least 30 seconds, better 2 or 3 minutes (depending on the number and size of the files)

3.3 Software - Client

- New webbrowser like **IE**, **Firefox**, **Opera**, **Chrome**.
- FTP client application like **Filezilla** (for installation)
- PDF-Viewer to read the user manual (like **Sumatra Reader**)
- ZIP-Tool to unpack the download archive (like 7-Zip)

4 User Requirements

This manual is available before you buy the PBmonitor tool. I would like that you can get the most of the game and therefore please make sure, you are comfortable doing the following actions:

- Check the hard- and software requirements.
- Upload files and directories to your webhost.
- Set directory permissions on the webhost.
- Edit a configuration file in a text editor.

If you have a question about the PBmonitor application, please send me an e-mail message to **support@pb-soft.com**. I'm always glad to help!

5 Check Host Information

If you want to check if your webhost meets the necessary software requirements, you can create a small PHP file which can show you a lot of information about your host and the installed software. Please create a new text file with the following content:

phpinfo.php

```
<?php
  phpinfo();

```

Then save the new file as "**phpinfo.php**" and upload it to the webroot directory of your webhost (upload in ASCII mode). After the upload has finished, please open your favorite webbrowser and enter the URL to the uploaded file "**phpinfo.php**". If your domain name is "**example.com**", the correct URL would be "**http://www.example.com/phpinfo.php**". A page with a lot of information about your host will be displayed:

PHP Version 5.5.10

System	Windows NT PC1 6.1 build 7601 (Windows 7 Ultimate Edition Service Pack 1) i586
Build Date	Mar 5 2014 14:46:06
Compiler	MSVC11 (Visual C++ 2012)
Architecture	x86
Configure Command	cscript /nologo configure.js "--enable-snapshot-build" "--disable-isapi" "--enable-debug-pack" "--without-mssql" "--without-pdo-mssql" "--without-pi3web" "--with-pdo-oci=C:\php-sdk\oracle\instantclient10\sdk,shared" "--with-oci8=C:\php-sdk\oracle\instantclient10\sdk,shared" "--with-oci8-11g=C:\php-sdk\oracle\instantclient11\sdk,shared" "--enable-object-out-dir=../obj/" "--enable-com-dotnet=shared" "--with-mcrypt=static" "--disable-static-analyze" "--with-pgo"
Server API	CGI/FastCGI
Virtual Directory Support	enabled
Configuration File (php.ini) Path	C:\Windows
Loaded Configuration File	C:\mongoose\php-5.5.10\php.ini

Now you can check your host settings and I will explain where to find the most important ones.

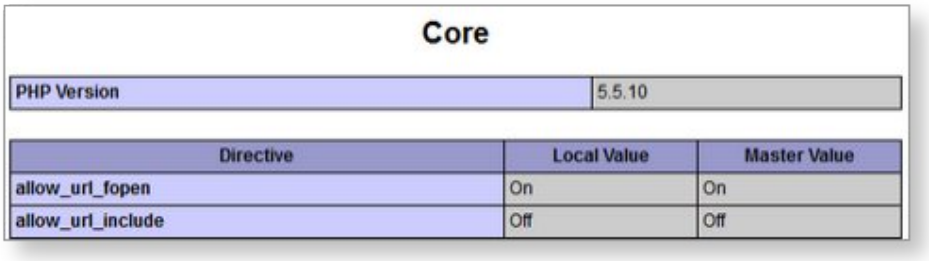
5.1 PHP Version

You can find the actual version of PHP on top of the page:

Your version should at least be 5.3 (you can also try to run it with a lower PHP version but I didn't test it on those versions).

5.2 PHP Maximum Execution Time

The maximum execution time for PHP scripts should be at least 30 seconds (if you don't have a lot of files) or better 180 seconds. You can find this setting '**maximum_execution_time**' under the header "**Core**" on your information page:

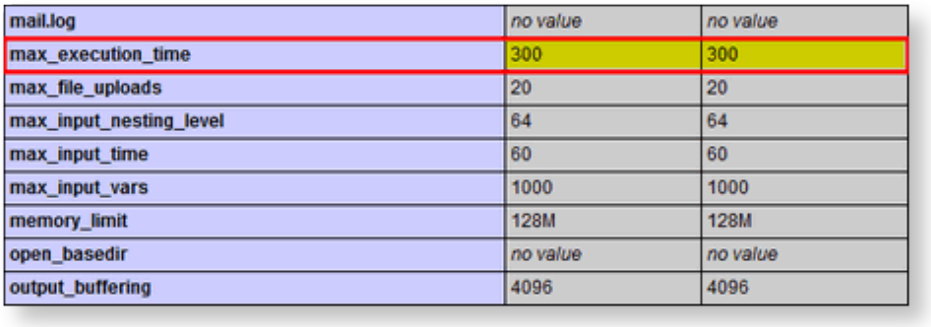


Core

PHP Version	5.5.10

Directive	Local Value	Master Value
allow_url_fopen	On	On
allow_url_include	Off	Off

If you have found the header "**Core**", scroll down until you find the following setting:



mail.log	*no value*	*no value*
max_execution_time	300	300
max_file_uploads	20	20
max_input_nesting_level	64	64
max_input_time	60	60
max_input_vars	1000	1000
memory_limit	128M	128M
open_basedir	*no value*	*no value*
output_buffering	4096	4096

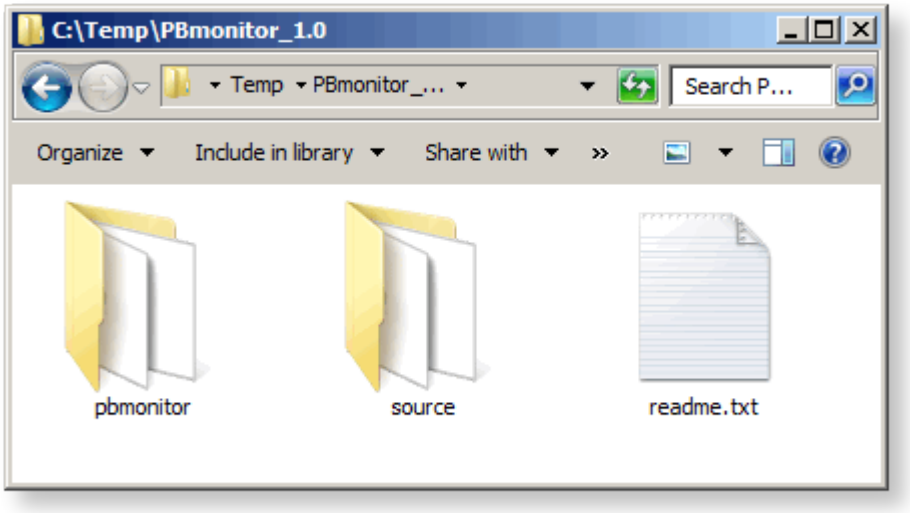
Now you can see the value of 300 in this example. If you have the possibility to increase the limit as needed, it would be helpful. For the begin you can start with 30 or 60 seconds.

6 Software Installation

6.1 Unpack the Archive

If you have downloaded the newest PBmonitor archive from the **Codecanyon Website** your download folder should contain an archive called "**PBmonitor_1.0.zip**":

Now you have to unpack the archive with an unzip utility like 7-Zip. You can download the free 7-Zip archiver from the **7-Zip Website**. After unzipping the PBmonitor archive you will get the directory "**PBmonitor_1.0**" which contains two folders and one file:



6.2 Content of the Archive

The content (folders and file) of the unpacked PBmonitor ZIP file will be explained on this page:

Folder "pbmonitor"

This folder contains the whole pbmonitor application and this is also the folder you have to upload to your webhost. The files inside are optimized/minified and should not be edited.

Folder "source"

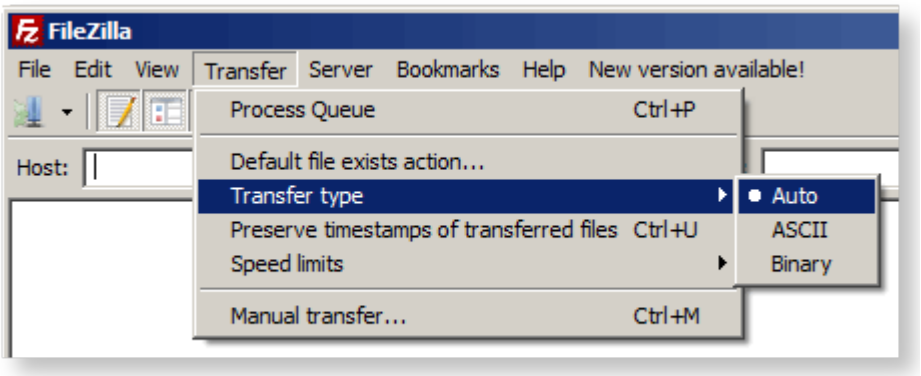
This folder contains the PHP / HTML / CSS and JavaScript source code of the PBmonitor application. In the "pbmonitor" folder the minified versions of those files are used for a better performance (faster download time for CSS and JavaScript files). If you want to modify something, make a copy of the source files and don't edit the original ones!

File "readme.txt"

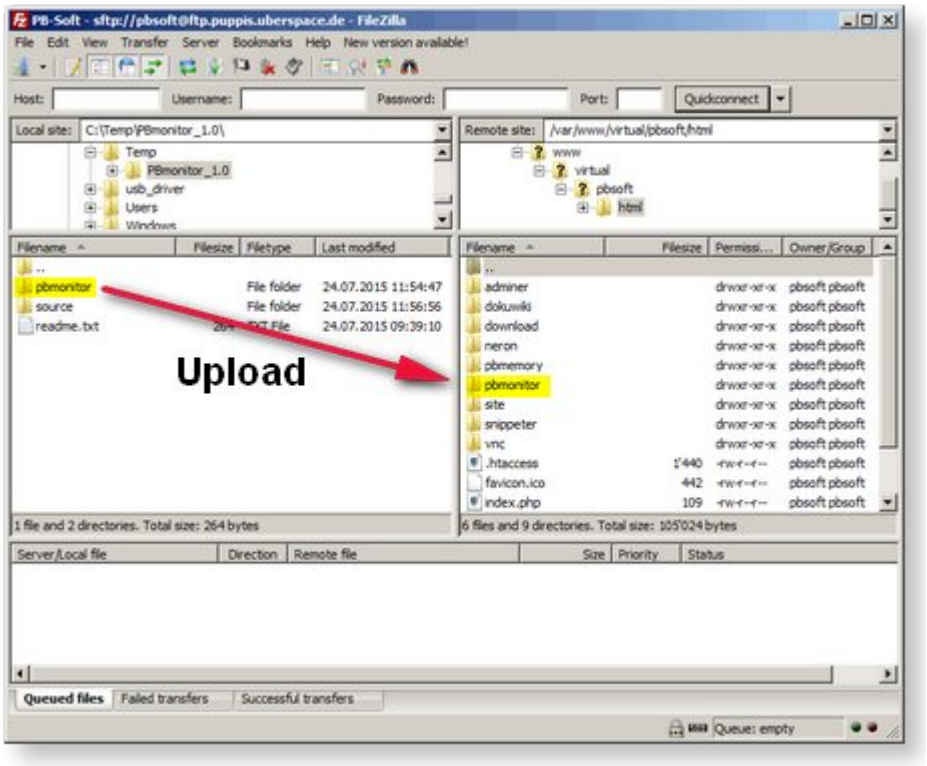
The file "**readme.txt**" only informs the user about the location of this user manual: "**pbmonitor/pdf/pbmonitor.pdf**".

6.3 Upload the Application to Your Host

To install the PBmonitor application, you have to upload the whole folder "pbmonitor" to the root of your web directory on the host. It is easy if you use a graphical FTP client like **Filezilla**. Please be sure, that you upload the files with the "**Transfer type**" called "**Auto**". This makes sure that your files are uploaded the right way.

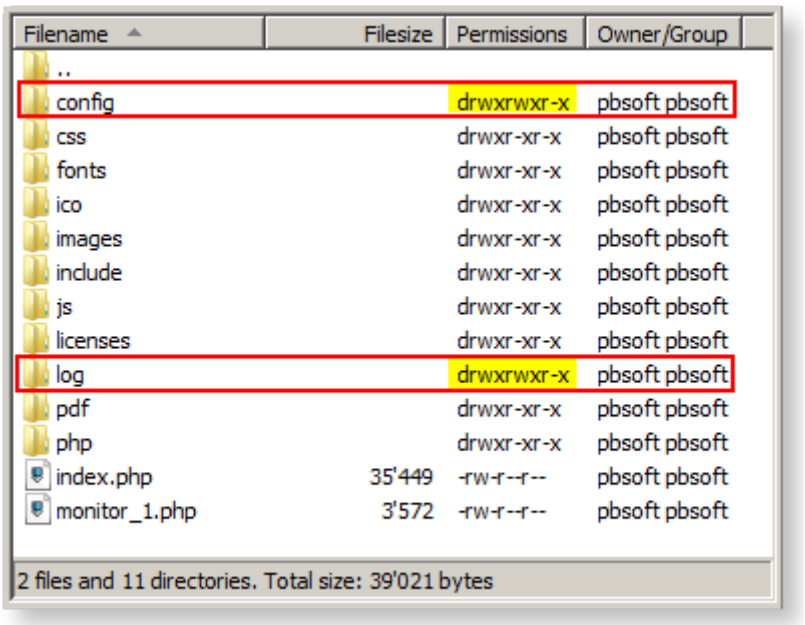


The following image shows the Filezilla FTP client and where to copy the "**pbmonitor**" folder:

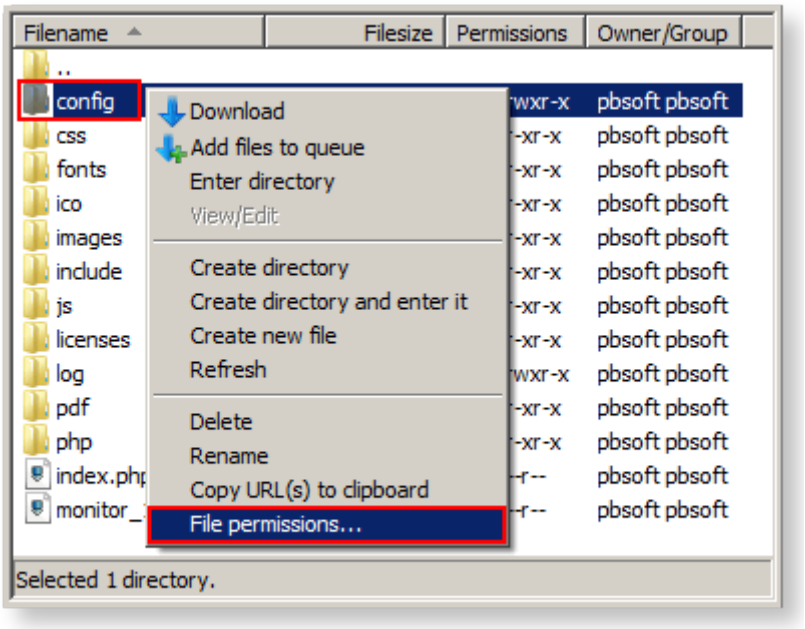


6.4 Setting the Directory Permissions

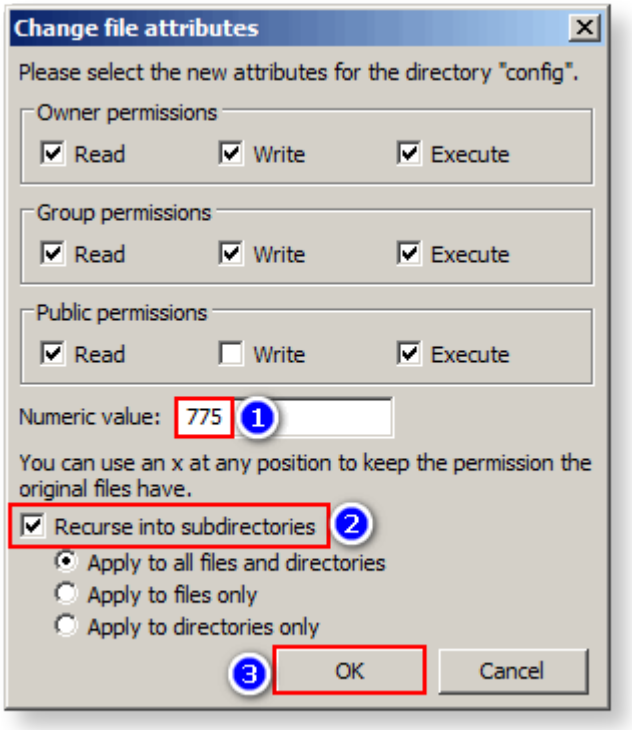
After uploading the whole "pbmonitor" folder you have to set the permissions on the subfolder "**config**" and "**log**" like you can see on the following image:



If you right-click on a folder you can choose "**File permissions...**" from the context menu:



Then you will see the following window where you can specify the desired file permissions:



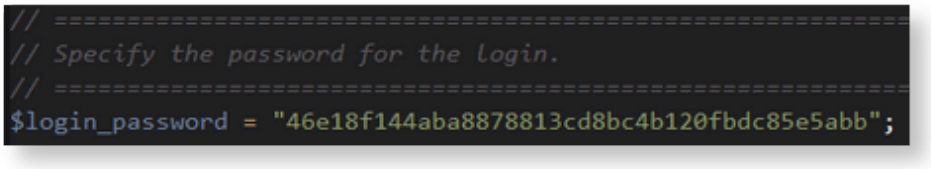
Choose the file permission "**775**", select the checkbox to apply the changes to all files and subfolders and then click the button "OK". Do this for the two folders "**config**" and "**log**".

7 Basic Configuration

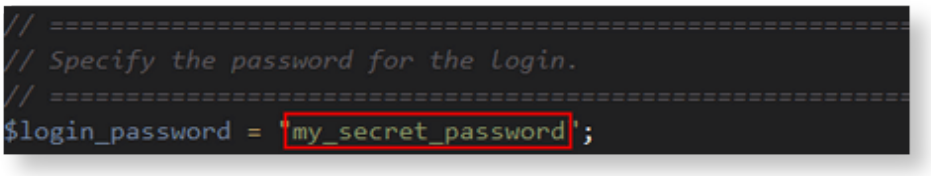
You can change the system settings for the PBmonitor application using your favorite text editor or if you don't have a good text editor, you may try one of the free text editors **Notepad++** or **PSPad**. The configuration files are well documented and there should be no problem to change one or more values.

7.1 Setting an new Password

For security reasons it's recommendable to set a new password for the administration panel (user interface) as soon as possible. Therefore you have to open the PBmonitor system configuration file "**pbmonitor/config/system_config.php**" and search for the setting "**$login_password**" in the configuration file:



This setting has the default password "**123456789**" set and you can change that now. Please enter a good password with at least 8 characters and replace the default hash string:



Please be sure to choose a "**good**" password out of alphabetical characters in upper and lower case, numbers and some special characters like + - @ _ / or similar! A relative strong password would be the following randomly created string of 12 characters:

f.2@-L/+DA.d

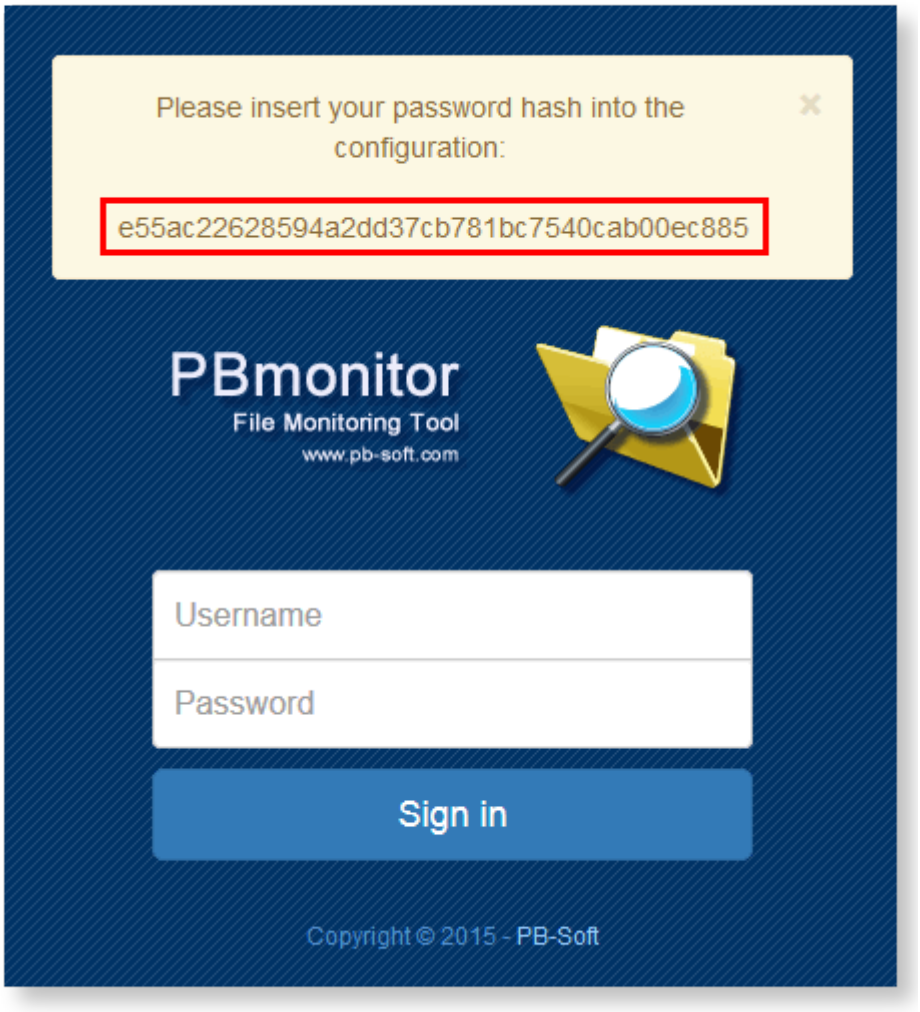
You can use a password manager like **Keepass** so you don't have to remember all your passwords :-)

Then save the configuration file and upload it to your host, overwriting the existing one.

After the upload, navigate with your favorite web browser to the PBmonitor directory. If you installed the PBmonitor application in the root directory of the domain "www.example.com", this would be the following URL:

http://www.example.com/pbmonitor/

You will see the following screen with your new password hash:

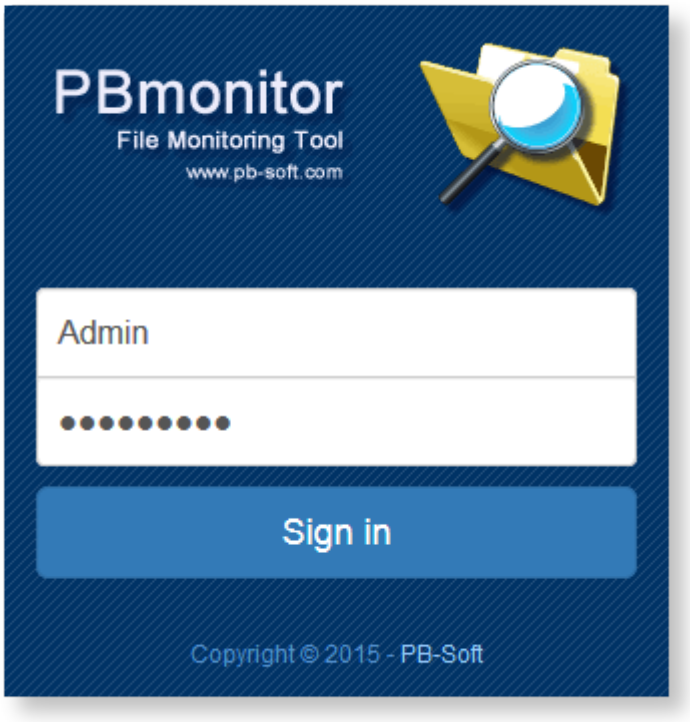


Please copy the new password hash from the screen and enter it to the configuration file, overwriting your plain text password.

```
// ================================================================
// Specify the password for the login.
// ================================================================
$login_password = 'e55ac22628594a2dd37cb781bc7540cab00ec885';
```

Then save the PBmonitor system configuration file and upload it to your web host. Your password is now well protected because it's not stored in plain text.

Now you can go back to your web browser and refresh the login page and login with your new generated password!

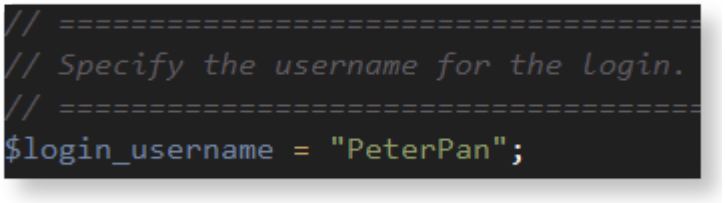


7.2 Changing the Username

Changing your password is a good idea and very important! But it's also a good idea to change the default username "**Admin**" to another username. You can go to the setting "**$login_username**" in the PBmonitor system configuration file:

```
// ====================================
// Specify the username for the login.
// ====================================
$login_username = 'Admin';
```

Then change the default username to another one:



Then save the PBmonitor system configuration file and upload it to your web host. Your username will now be different but your password is still the same and valid!

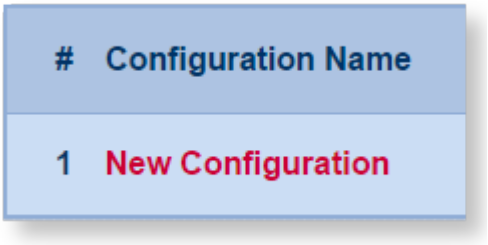
8 Using the PBmonitor Application

8.1 Starting the Application

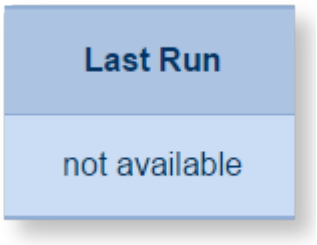
To start the application navigate in your favorite web browser to the PBmonitor directory on your host. Then enter the username and password into the login form and press the button "**Sign in**". The overview (homepage) will be displayed:

8.2 The Overview

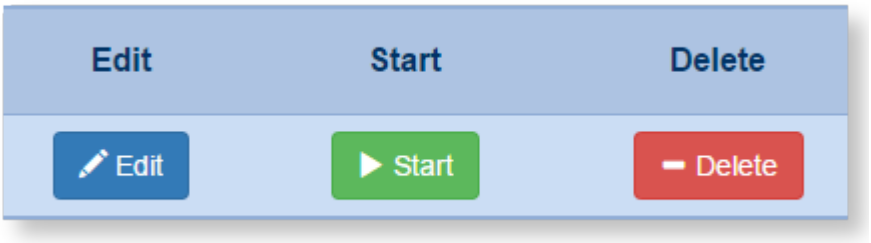
On the overview shows a table with all the existing configurations listed. At the begin, there is only an example configuration called "**New Configuration**" available:



For each configuration the last run time is displayed. Because your installation is a new one, the last time can not be displayed:



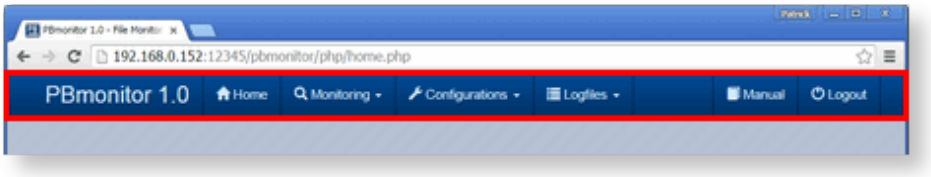
On the right side there are some buttons which allow you to edit, run or delete the corresponding configuration:



How to edit, run (start) or delete the configuration will be explained in the following chapters of this user manual.

8.3 The Navigation Bar

The navigation bar holds all the necessary elements to use the application:



On the following pages the different elements will be explained:

Name and Version

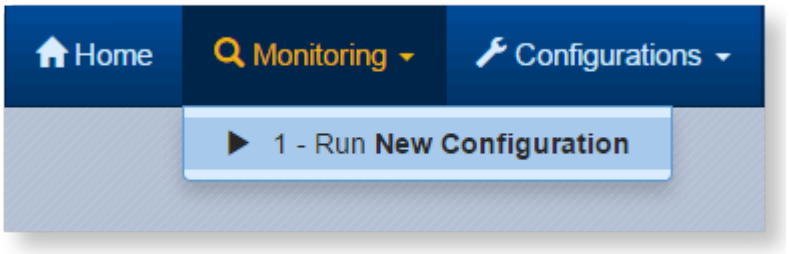
On the left side you can see the name of the application and the actual version. If you click on the name or version, you will be forwarded to the **PB-Soft Website**.

The Button "Home"

This button will always bring you back to the overview page with the configuration table:

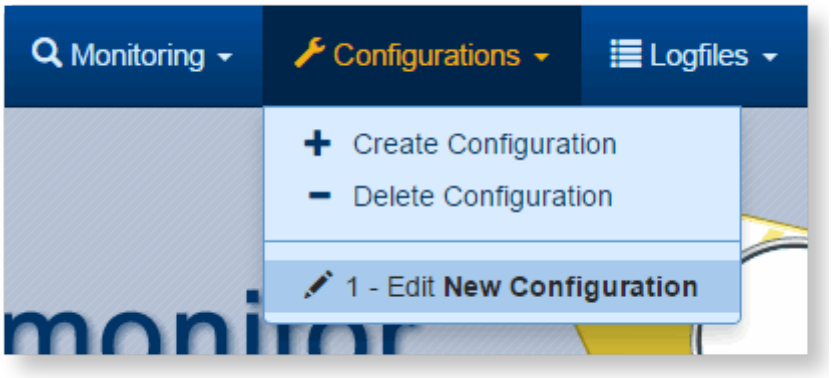
The Menu "Monitoring"

Over the menu "**Monitoring**" you can immediately run (start) the selected monitoring process. This is the same as pressing the green button "**Start**" on the overview page:



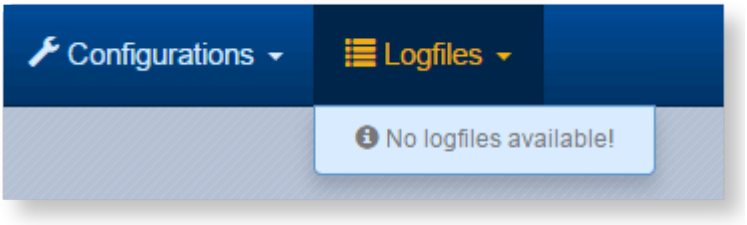
The Menu "Configurations"

From the menu "**Configurations**" you can create a new and empty configuration, delete and edit an existing configuration:



The Menu "Logfiles"

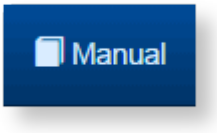
Over the menu "**Logfiles**" you can access the different logfiles for each of the configuration and start directories. You can also view the "**Login log**" and "**Process log**":



Because you have a new installation, no logfiles are available.

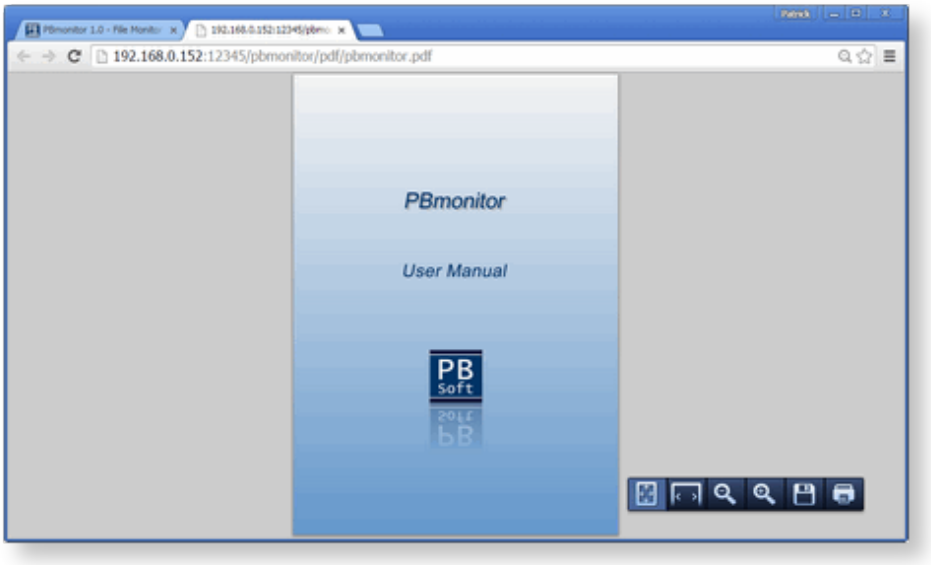
The Button "Manual"

This button will display the user manual (this document) in PDF format:



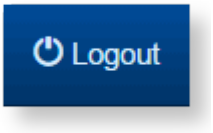
You will need a PDF viewer to display the user manual.

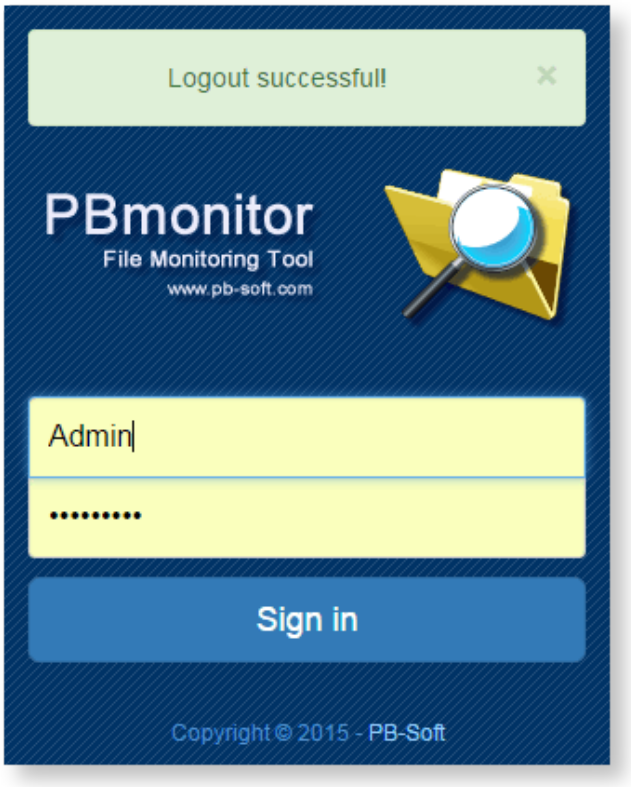
If you don't have one, you can get the free **Sumatra Reader**.



The Button "Logout"

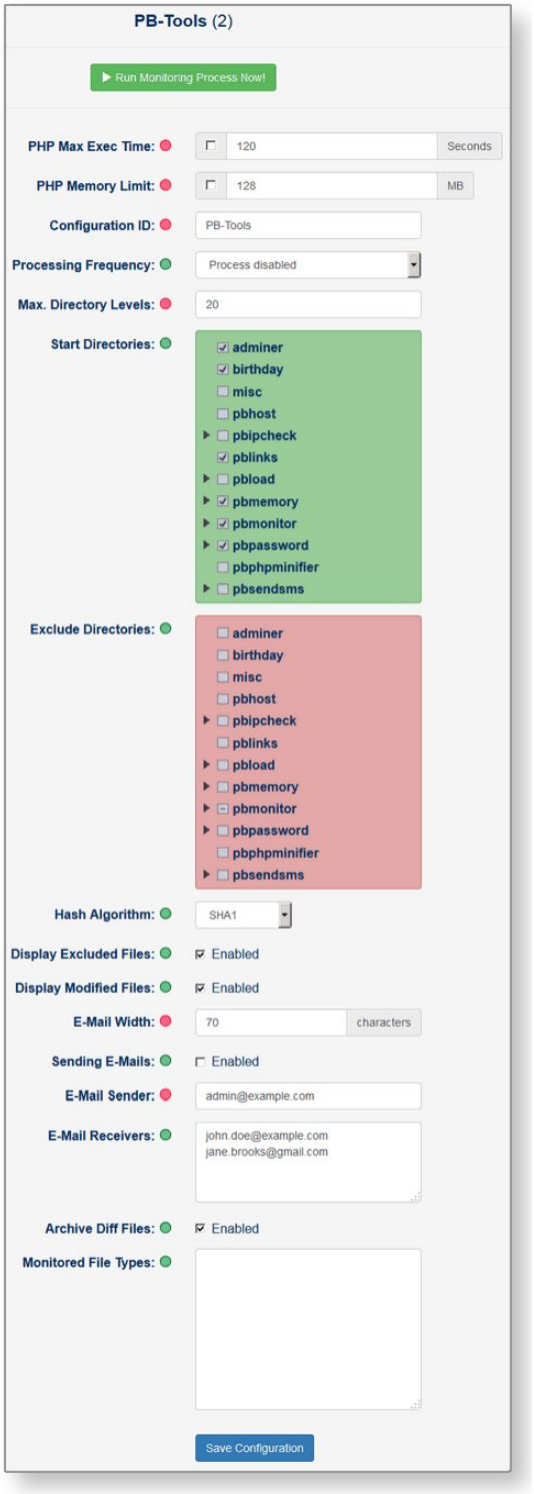
This button will log you out and display the login form:





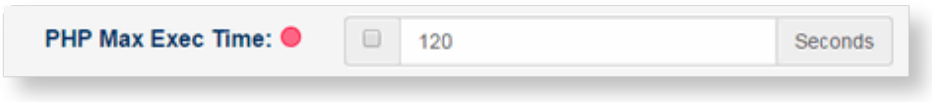
8.4 New / Edit Configuration

To create a new configuration or to edit an existing configuration, choose the corresponding option from the menu "**Configurations**" or press the blue button "**Edit**" on the overview page. The configuration editor will be displayed:



There are quite a lot of settings on this page, so each one of them will be explained on the following pages:

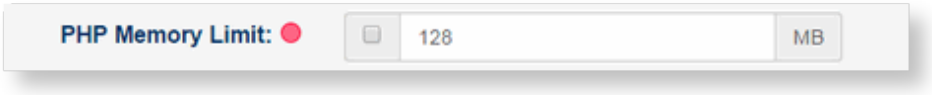
PHP Max Exec Time



If you don't have access to the PHP configuration of your host, you can try to specify the maximum execution time of a PHP script. It depends on the settings of your host if this setting will succeed or not. If this setting does not help to increase the maximum execution time for PHP scripts, you have to contact your hosting provider and let him increase the value for you. If he does not agree and increase the value for you, you can divide the monitoring process to different configurations. Each of them will run and monitor less files than if you have everything in one configuration file. You can specify the number of seconds for the application to use as the maximum execution time.

If the checkbox is activated, this setting is enabled. If the checkbox is not activated, this setting is disabled. As default this setting is disabled.

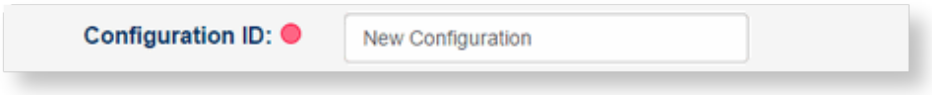
PHP Memory Limit



If you don't have access to the PHP configuration of your host, you can try to specify the maximum memory the PBmemory application can use during runtime. It depends on the settings of your host if this setting will succeed or not. If this setting does not help to increase the maximum memory, you have to contact your hosting provider and let him increase the value for you. Normally the memory limit is not a problem and you normally don't have to enable this setting. You can specify the number of megabytes for the application to use during runtime.

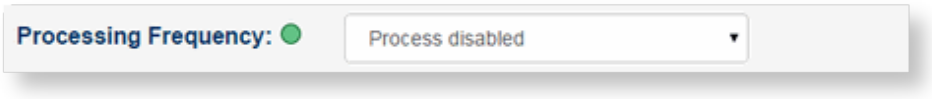
If the checkbox is activated, this setting is enabled. If the checkbox is not activated, this setting is disabled. As default this setting is disabled.

Configuration ID



Here you can specify an identifier (name or ID) for the actual configuration. This is only used that you can easily identify the different configurations. As an example you can enter a name like "**Company Website**", "**Club CMS**", "**Web Application**" or "**Blog**". You can change this ID anytime because the PBmonitor application identifies the different configurations by their number.

Processing Frequency



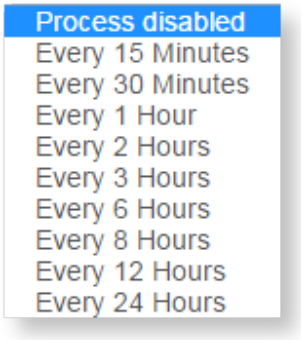
Normally the cronjob for each of the monitoring starting files is set to 5 minutes. Here you can specify when the actual monitoring process should actually run. An example would be helpful I think. If the starter file is scheduled to run all 5 minutes it will run at:

10:00, **10:05**, **10:10**, **10:15**, **10:20**, **10:25** and **10:30**

Now if you specify 15 minutes from the dropdown list, the starter file will run all 5 minutes but only trigger the monitoring process all 15 minutes at:

10:00, **10:15** and **10:30**

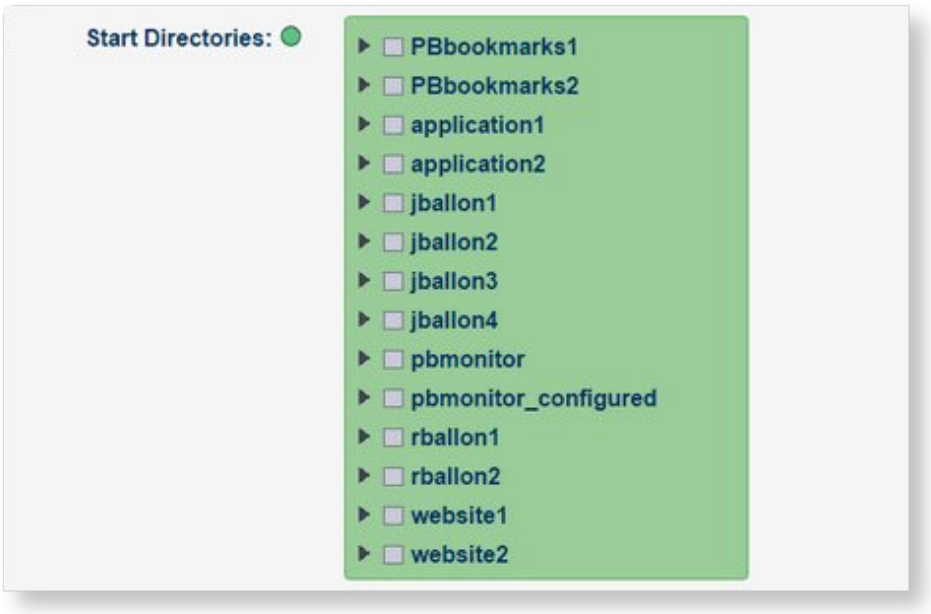
This setting is used to change the frequency of the monitoring processes without having to change the cronjob each time. You can also disable the monitoring process. The default setting is "**Process disabled**". The following options are available:



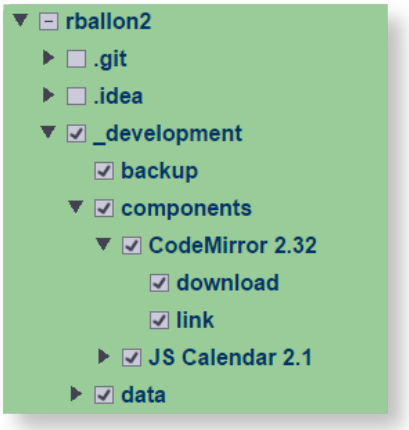
Max. Directory Levels

Here you can specify how deep the directories should be scanned (monitored). Normally you want to monitor all directories and the default value of 20 will be all right. If you have extremely deep nested directories you can increase this value. If you don't need to monitor all levels you can decrease this value. Normally you don't have to change this value.

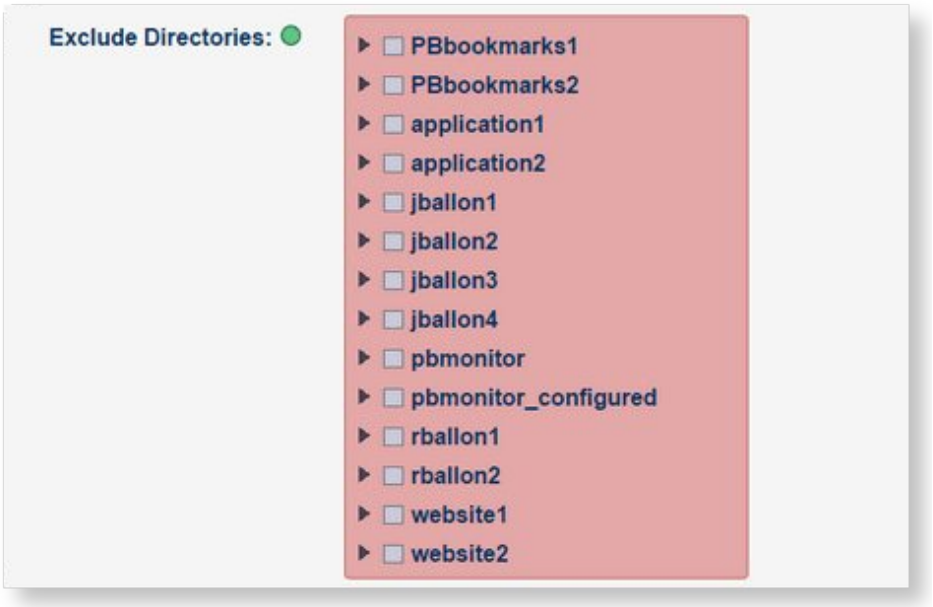
Start Directories



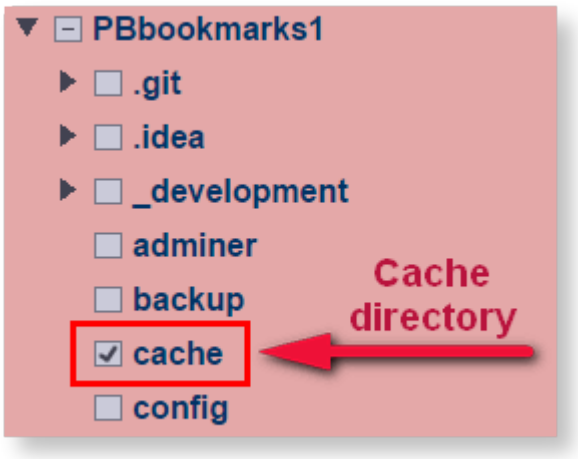
Here you can select all the start directories to monitor. Just select the checkboxes to mark all the needed (sub)directories:



Exclude Directories



Here you can select all the start directories you don't want to monitor. Just select the checkboxes to mark all the (sub)directories to exclude from the monitoring process like temporary, cache or log directories:

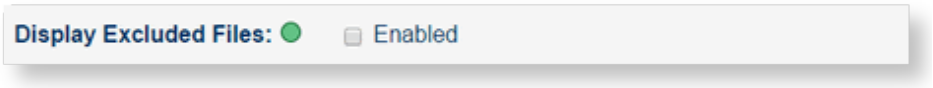


If you select a directory, all subdirectories also will be excluded. The more directories you exclude the faster will be the monitoring process. A good idea is to exclude all directories which are not important or have big files inside like (as an example) huge video files or ZIP archives. If you exclude huge files, you will speed up the monitoring process substantially!

Hash Algorithm

Here you can select the algorithm used for comparing the files. You can choose between the "**SHA1**" and the "**MD5**" algorithms. While MD5 could be a little bit faster (depends on a lot of things), SHA1 is preferred because it has a longer hash for comparing and therefore should have less collisions. The default value is "**SHA1**". This is not a security issue just a speed issue!

Display Excluded Files

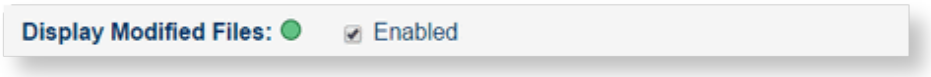


This checkbox will specify if you want to have the **excluded** files displayed if you start the monitoring process manually from the user interface. This can be useful to check if not the wrong files are excluded:

Excluded file | C:\mongoose\www\PBbookmarks2\video\index.html
Excluded file | C:\mongoose\www\PBbookmarks2\video\search_de.mp4
Excluded file | C:\mongoose\www\PBbookmarks2\video\search_de.png
Excluded file | C:\mongoose\www\PBbookmarks2\video\search_de.xml

If the checkbox is activated, this setting is enabled. If the checkbox is not activated, this setting is disabled. As default this setting is disabled.

Display Modified Files



This checkbox will specify if you want to have the **modified** files displayed if you start the monitoring process manually from the user interface. This is normally useful.

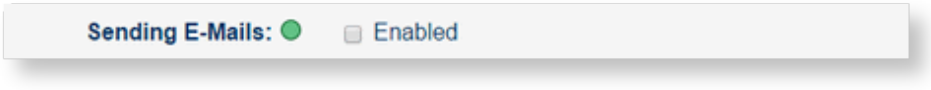
New / Modified file | 13.02.2014 | 14:24:42 | File: C:\mongoose\www\PBbookmarks2\font\glyphicons-halflings-regular1.eot
New / Modified file | 24.04.2014 | 06:09:16 | File: C:\mongoose\www\PBbookmarks2\font\glyphicons-halflings-regular1.svg
New / Modified file | 13.02.2014 | 14:24:42 | File: C:\mongoose\www\PBbookmarks2\font\glyphicons-halflings-regular1.ttf
New / Modified file | 13.02.2014 | 14:24:42 | File: C:\mongoose\www\PBbookmarks2\font\glyphicons-halflings-regular1.woff
New / Modified file | 21.07.2013 | 06:23:20 | File: C:\mongoose\www\PBbookmarks2\font\index1.html

If the checkbox is activated, this setting is enabled. If the checkbox is not activated, this setting is disabled. As default this setting is enabled.

E-Mail Width

Here you can set the width of the alert e-mails which will be sent by PBmonitor and will specify the width of the "====" bars used to show the information in the e-mails. The default value is set to 70 characters. Normally you don't have to change this setting.

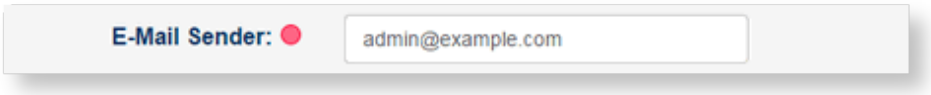
Sending E-Mails



This checkbox specifies if e-mail alerts will be sent. For testing purposes it can be useful to disable sending of alert e-mails. In normal operation, this setting should always be enabled.

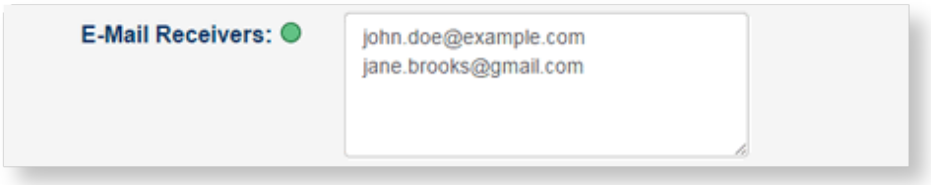
If the checkbox is activated, this setting is enabled. If the checkbox is not activated, this setting is disabled. As default this setting is disabled because if you install and test the PBmonitor application you don't want to receive hundreds of e-mails :-)

E-Mail Sender



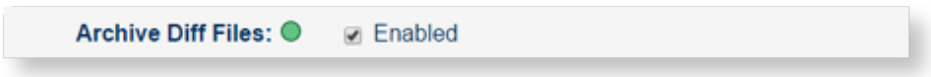
Here you can enter the sender e-mail address of the alert e-mails. This sender will be visible to the e-mail receivers. If your host is sending this e-mails, you could maybe use the sender address "**admin@yourdomain.com**". As default value for this setting an example address is specified. Please change this to a more useful one!

E-Mail Receivers



Here you can enter all the e-mail addresses of the e-mail receivers which should get the e-mail alerts if file modifications are detected during the monitoring processes. You have to enter only one e-mail address per line. As default, two example addresses are specified. Please replace them with your own address(es).

Archive Diff Files

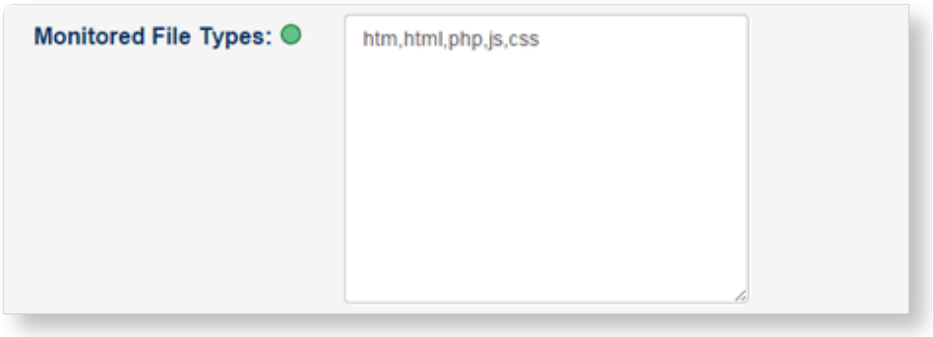


This checkbox specifies if the "**Diff-Files**" will be archived. These files are like snapshots which contain the actual state of the files during the monitoring processes and are used by the PBmonitor application to compare the files. Here an example of a diff file:

168 38de4b837975bd899934122b998a464612a1d9aa | C:\mongoose\www\rballon2_development\manual\png original\Overview1.png
169 5b115780798Bd7c88dd4ea14178e6b9e7ae1b87d | C:\mongoose\www\rballon2_development\manual\png original\Overview2.png
170 cdca7d4bd3c54abf9be3485c98864a913879a731 | C:\mongoose\www\rballon2_development\manual\png original\Overview3.png
171 daadb515c336f4f7324d5e99f9d222889237a3db | C:\mongoose\www\rballon2_development\manual\png original\Overview4.png

After the process has finished, those files are not used by the PBmonitor application but maybe can be useful to check some differences manually. Per default this setting is enabled.

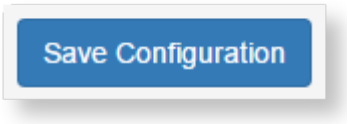
Monitored File Types



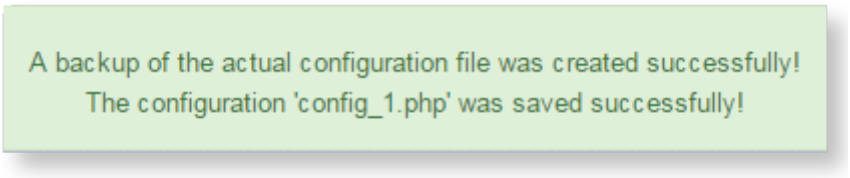
Here you can enter all file types you want to monitor. This is useful if you want to monitor only some specific types of files like HTML, PHP or CSS. If you want to monitor all files, just delete everything in the text area and leave the field empty. If you enter some values you have to separate them by commas like in the example file endings which are specified as default.

Saving the Configuration

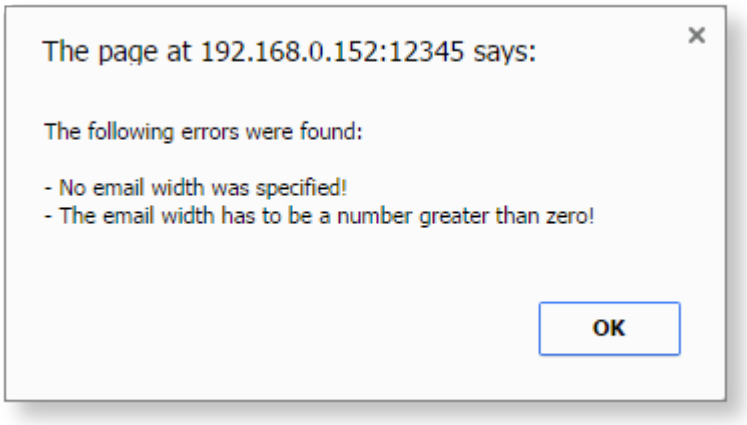
To save the configuration press the button "**Save Configuration**":



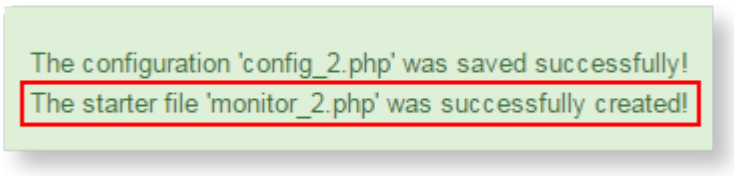
After the configuration was saved successfully an information message will be displayed:


A backup of the actual configuration file was created successfully!
The configuration 'config_1.php' was saved successfully!

If there is an error detected an error message will be displayed:


The page at 192.168.0.152:12345 says:
The following errors were found:
- No email width was specified!
- The email width has to be a number greater than zero!
OK

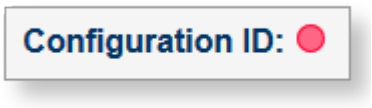
If you create a new configuration and save it, the PBmonitor application will also create a starter file which is used to run the new configuration with a cronjob. You will see the following message which shows the successful creation of the starter file:



There is a special chapter in this user manual on how to schedule the monitoring functionality with a cronjob.

Types of Form Fields

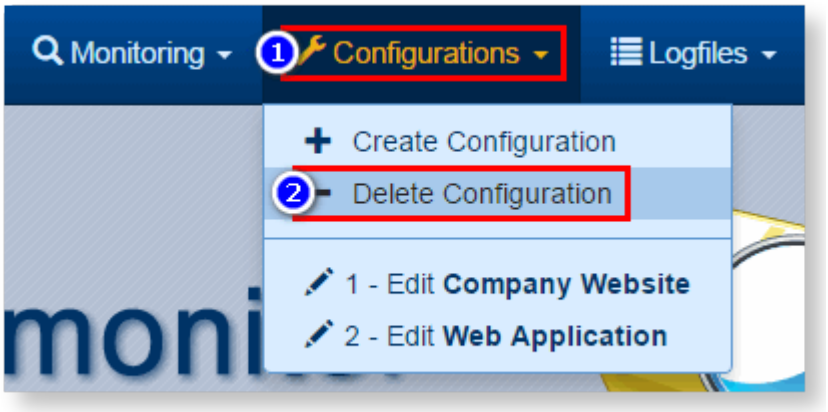
The configuration form has fields which are mandatory and the user has to specify an option or enter some text. This fields are identified by a red dot at the right side like you can see on the following image:



There are also fields where the input is voluntary and can be left on the default option or without any text. Those fields are identified by a green dot on the right side like on the following image:

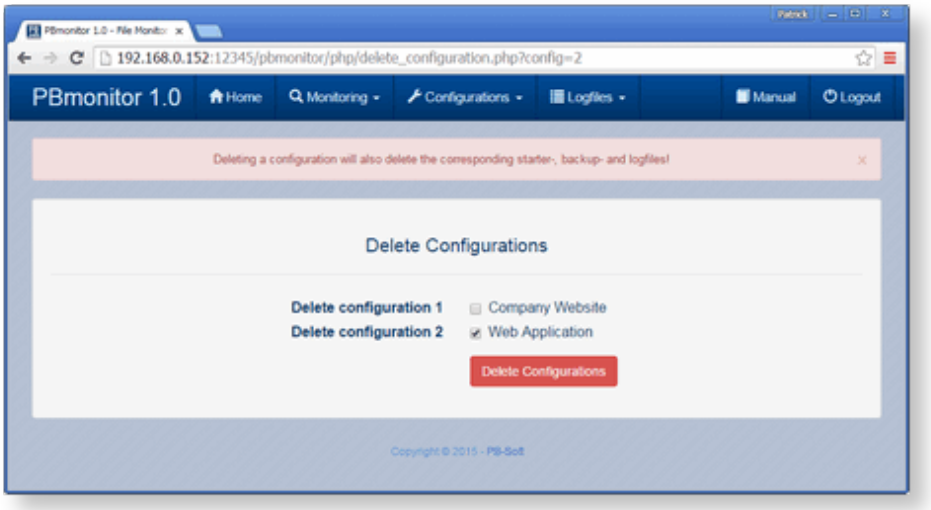
8.5 Delete a Configuration

If you want to delete one or more configurations you can open the menu "**Configurations**" and choose "**Delete Configuration**" to open the deletion form:



You also can delete a configuration from the overview (home) page by pressing the red "**Delete**" button like the image below indicates:

After that the selection form to delete configurations will be displayed. If you pressed the red "**Delete**" button of a specific configuration, this configuration is already selected:



Now you can make some changes if you want and select some more configurations to delete or press the red button "**Delete Configurations**" to delete the selected configurations.

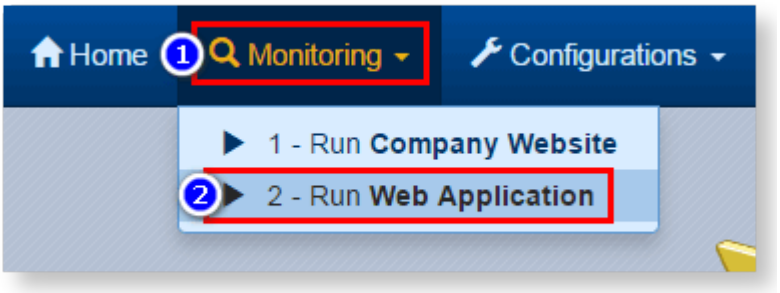
If you delete a monitoring configuration, all the linked files like starter-, backup- and logfiles will also be deleted! Make copies of the data first if necessary!

After pressing the button, the configuration and all connected data will be deleted and some success messages will be displayed:

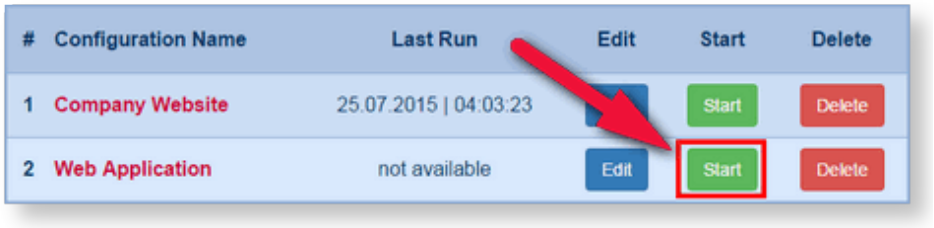
The log directory '../log/dir_2_0' was successfully deleted!
The log directory '../log/dir_2_1' was successfully deleted!
The configuration file '../config/config_2.php' was successfully deleted!

8.6 Run a Monitoring Process Manually

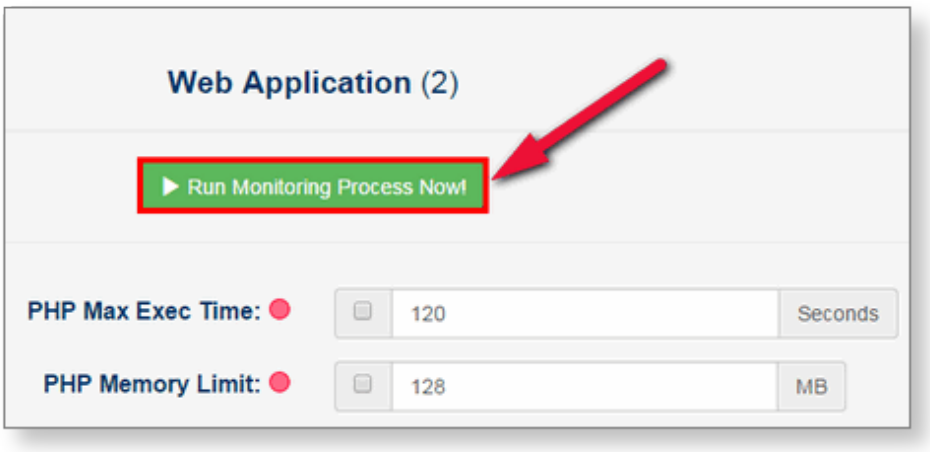
If you want to run a monitoring process manually, you can open the menu "**Monitoring**" and choose a configuration to start it:



You also can start the monitoring process from the overview (home) page by pressing the green "**Start**" button like the image below indicates:

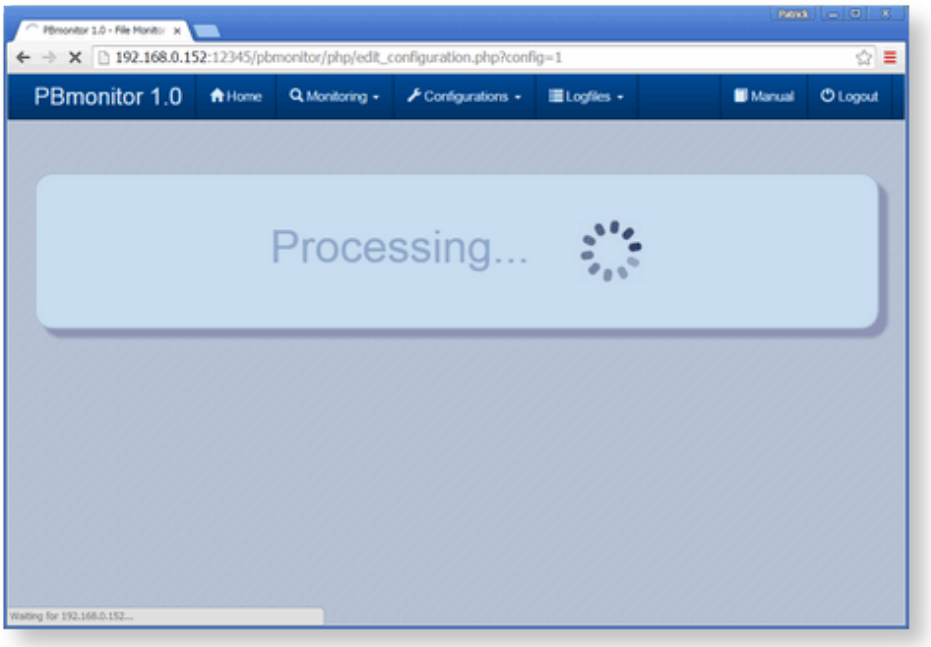


You also can start the process from the configuration page by pressing the green "**Run Monitoring Process Now!**" button:

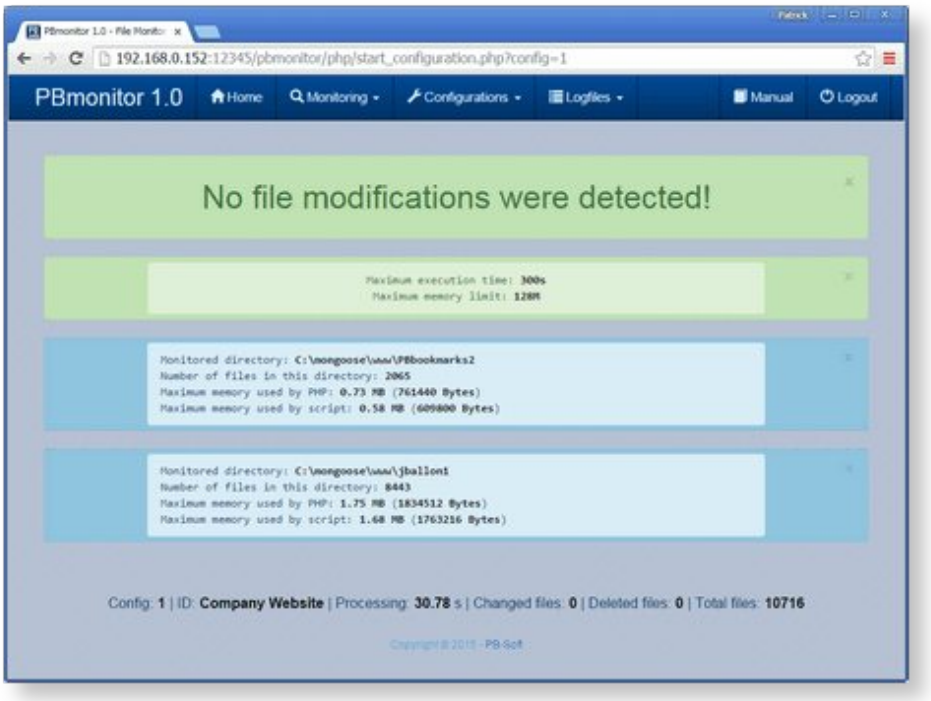


Depending on the monitoring configuration, the number of files, the size of the files and the hardware of the host, the process can take some time.

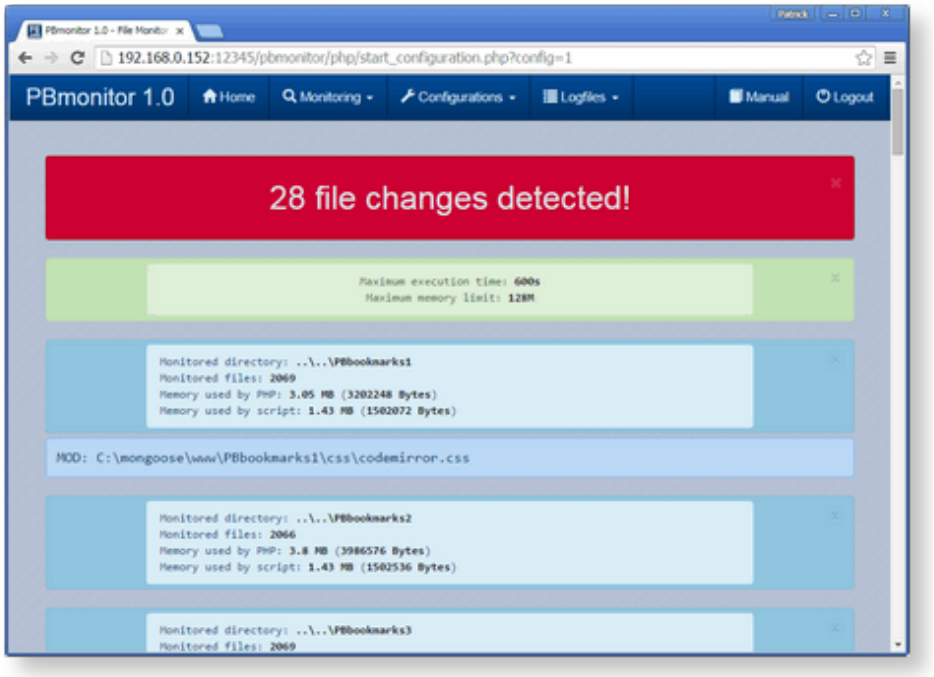
During this processing time time an information message is displayed:



After the process has finished, a report will be displayed on the screen. On this example no file modifications were detected:

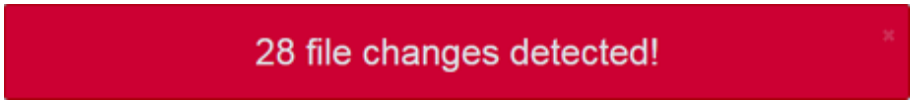

192.168.0.152:12345/pbmonitor/php/start_configuration.php?config=1
PBmonitor 1.0
Home
Monitoring
Configurations
Logfiles
Manual
Logout
No file modifications were detected!
Maximum execution time: 300s
Maximum memory limit: 128M
Monitored directory: C:\mongoose\www\PBbookmarks2
Number of files in this directory: 2065
Maximum memory used by PHP: 0.73 MB (761440 Bytes)
Maximum memory used by script: 0.58 MB (609800 Bytes)
Monitored directory: C:\mongoose\www\jballon1
Number of files in this directory: 8443
Maximum memory used by PHP: 1.75 MB (1834512 Bytes)
Maximum memory used by script: 1.68 MB (1763216 Bytes)
Config: 1 | ID: Company Website | Processing: 30.78 s | Changed files: 0 | Deleted files: 0 | Total files: 10716

On the following example 28 file changes were detected:



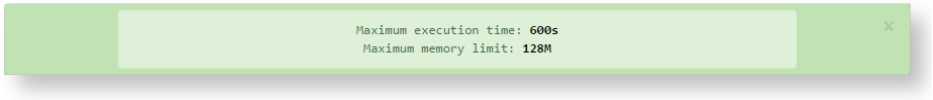
Status Bar

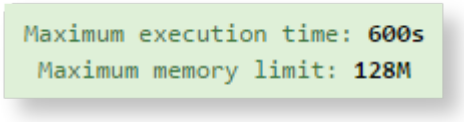
First there is the status bar which indicates if no changes were detected (green bar) or like in our case some file changes were detected (red bar):



System Information

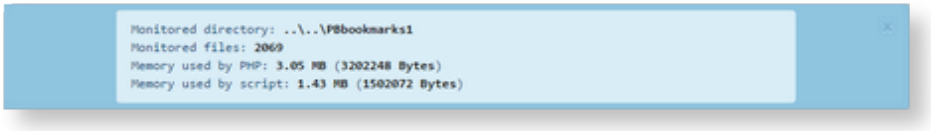
After the status bar you will see a green information bar which shows the actual host settings of the **maximum execution time** and **maximum memory limit** for PHP scripts:

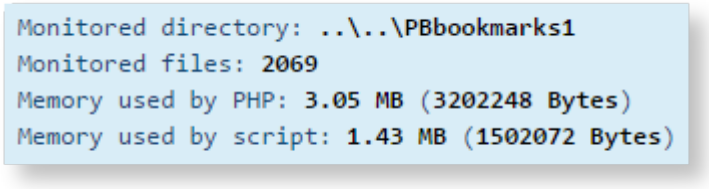




Directory Information

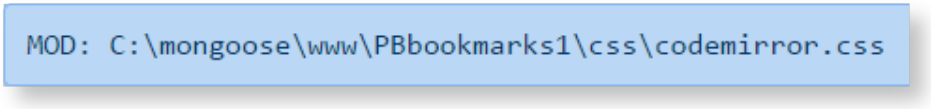
For each "Start Directory" there is an bar which displays some information about the actual directory. You can see the name of the directory, how many files there are to monitor and the maximum memory usage until this point of monitoring:


Monitored directory: ..\..\PBbookmarks1
Monitored files: 2069
Memory used by PHP: 3.05 MB (3202248 Bytes)
Memory used by script: 1.43 MB (1502072 Bytes)


Monitored directory: ..\..\PBbookmarks1
Monitored files: 2069
Memory used by PHP: 3.05 MB (3202248 Bytes)
Memory used by script: 1.43 MB (1502072 Bytes)

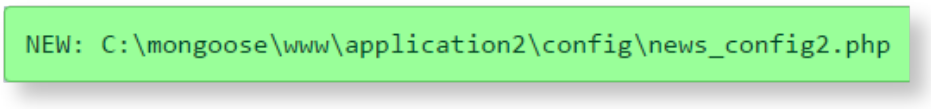
Modified Files

Modified files in the PBmonitor application are files which had a change in the file content but the filename and path are still the same. All the modified files will be displayed with a light blue background right below the directory information:



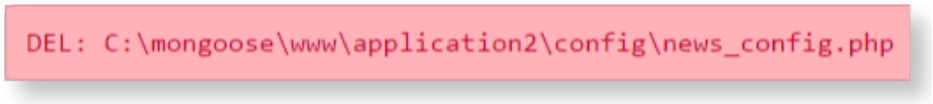
New Files

New files in the PBmonitor application are files which did not exist at the last time of scanning. All the new files will be displayed with a green background also below the corresponding directory information bar:



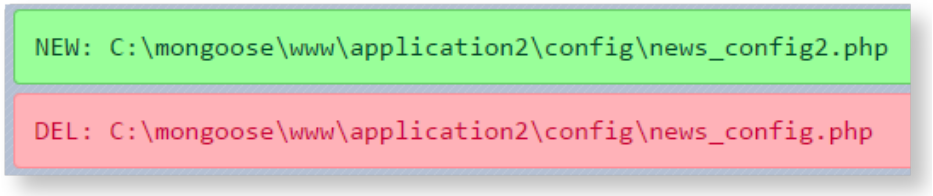
Deleted Files

Deleted files in the PBmonitor application are files which did exist at the last time of scanning but now they do not exist anymore. All the deleted files will be displayed with a red background also below the corresponding directory information bar:



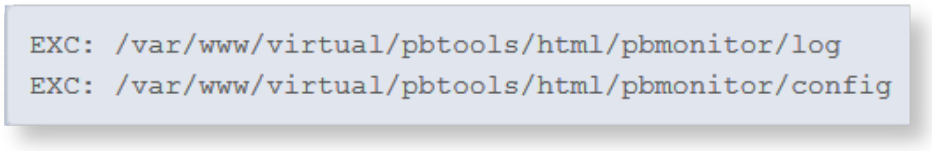
Renamed Files

If you rename a file, for the application it looks like you deleted a file and then created another file with another name. So in this case you will find those two messages which will indicate this operation. In the following example I did rename a PHP file from "**news_config.php**" to "**news_config2.php**":



Excluded Files:

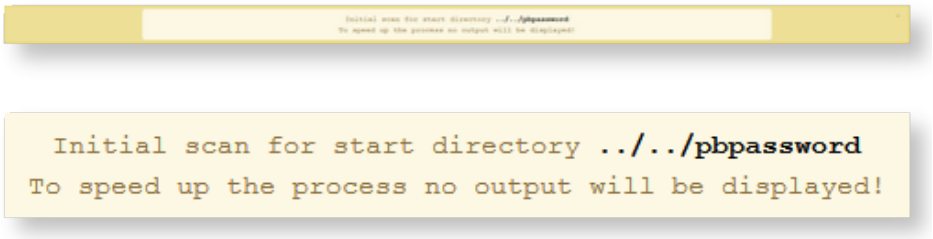
If you have enabled the setting to show the excluded files or directories, they will be displayed at the bottom of the result page with a gray background:



Initial Directory Scan

If a directory is scanned the first time, the output will not be displayed because all the files would be marked as new and you would have 10000 files displayed on the screen.

Instead of that, a yellow information message will be displayed for each of the start directories:

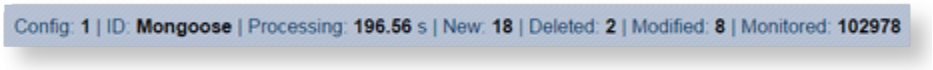


The next time the monitoring process is started, the file information will be displayed normally.

If you want to run an initial scan manually, you only have to delete the corresponding subdirectory in the "**log**" directory of the PBmonitor application. If the application does not find the old logfiles it will assume that an initial scan is be running.

Status Footer Bar

At the and of the page you will see a footer bar with the different status indicators:

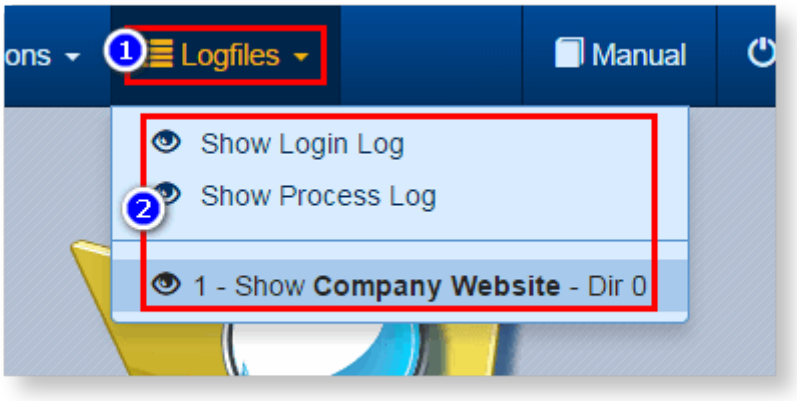


- ✓ **You can see the following information:**
- ✓ **Number of the used configuration**
- ✓ **ID/Name of the used configuration**
- ✓ **Processing time for monitoring all the files**
- ✓ **Number of new files**
- ✓ **Number of deleted files**
- ✓ **Number of Modified files (content has changed)**
- ✓ **Total number of monitored files**

In this example **102978 files were monitored in 197 seconds**. This is an extreme example but you see that it's possible to do it with PBmonitor!

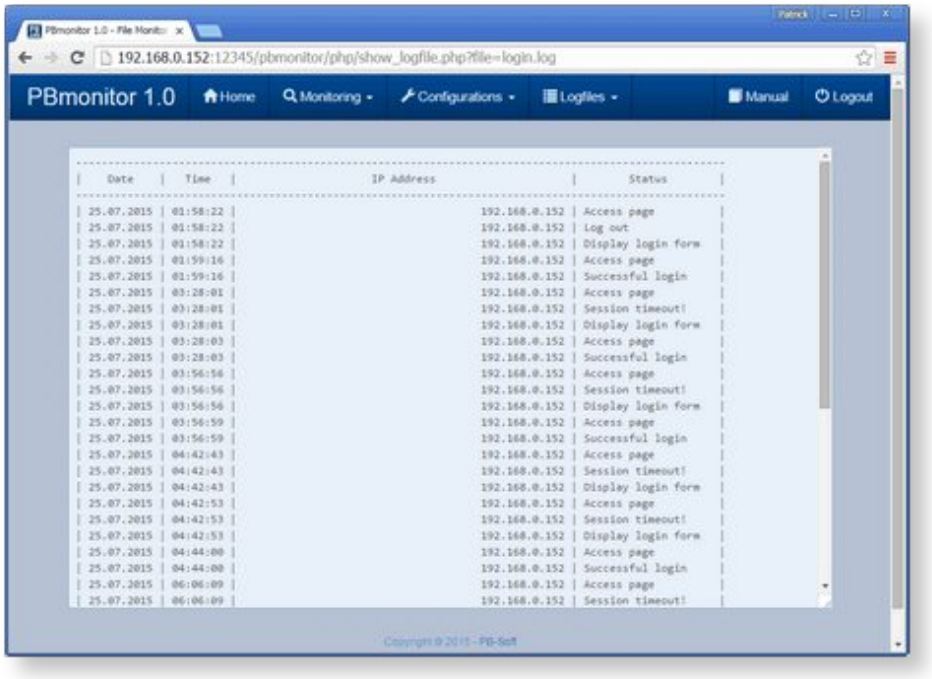
8.7 Displaying the Logfiles

There are three different types of logfiles. You can display them if you select them from the menu "**Logfiles**":



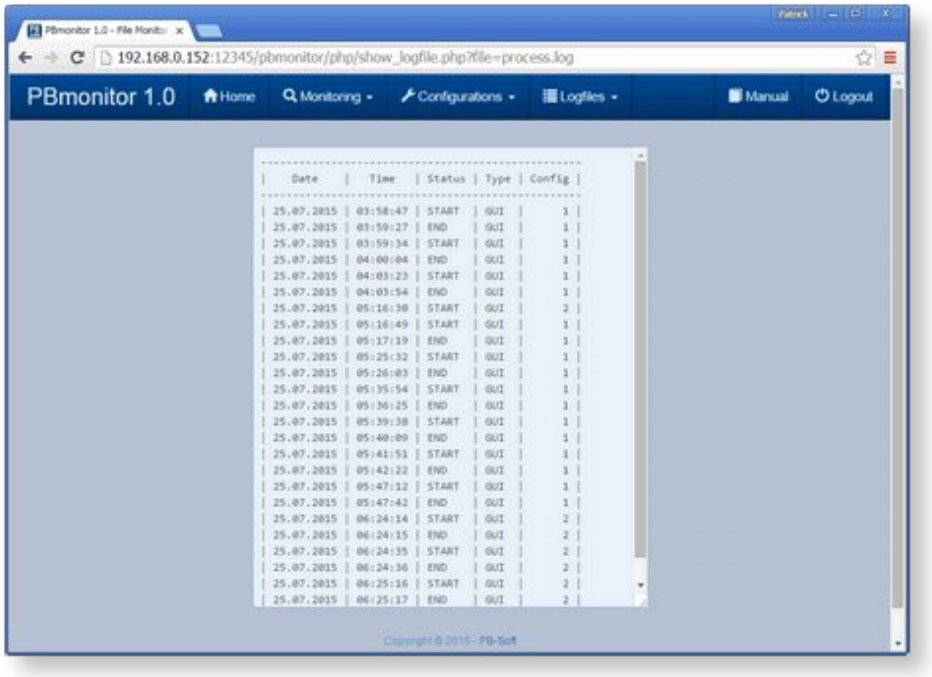
Login log

The login log contains all the information related to the user logins and is displayed in the log viewer like on the following image:



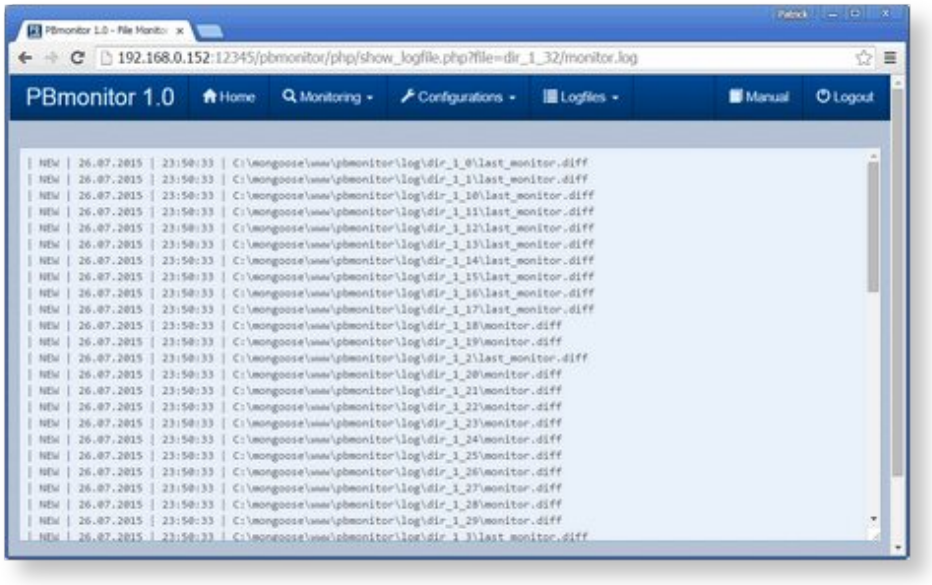
Process Log

The process log contains all the data about the executed monitoring processes and is displayed in the log viewer like on the following image:



Monitoring Logs

This logfiles contain all the file modification which were detected during the monitoring processes. Each start directory has his own logfile and all of them can be displayed in the log viewer:



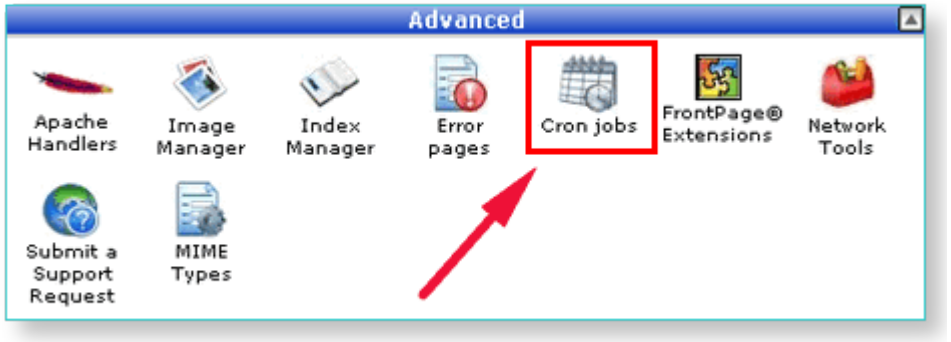
9 Scheduling with Cron

To schedule the monitoring processes you have to install a cronjob for each of them. If you open the "pbmonitor" directory you will see different starter files, for each of your configuration one:

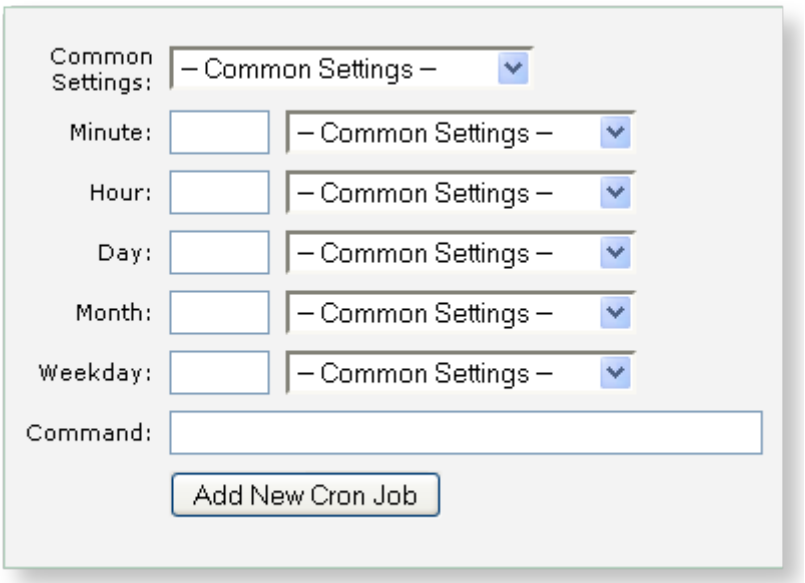
If you want to schedule your configuration number 1 you have to install a cronjob which runs the starter file "**monitor_1.php**". If you want to schedule your configuration 2 you start "**monitor_2.php**" and so on...

9.1 Add a Cronjob in cPanel

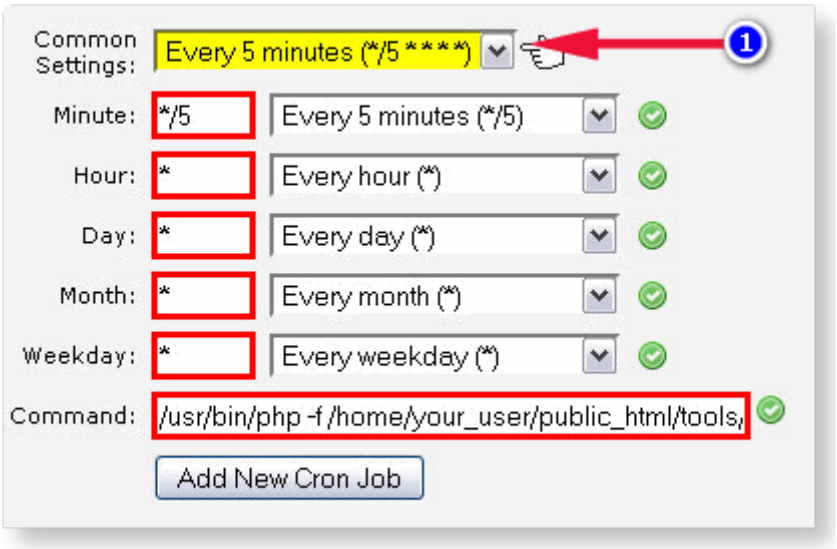
In cPanel there are different themes and styles and also different cPanel versions. So maybe your cPanel looks different but normally you should find an icon called "**Cron Jobs**" in the "**Advanced**" section of your administration panel:



If you click on the icon you will get to a configuration page and can enter your data into a form and create a cronjob. It should look similar like on the following image:



If you want to run the cronjob every 5 minutes you should choose the option "**Every 5 minutes (*/5****)**" from the common settings dropdown list (yellow area). This should automatically enter all the data into the red boxes like you can see on the following image:



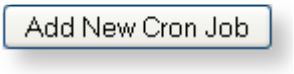
The last red box with the "**Command**" will not be ready because you have to specify which script you want to be executed. In the example the PHP interpreter "**/usr/bin/php**" is started with the option "**-f**". After the option (-f or --file) you can specify the file which has to be executed, in our case the PBmonitor starter file. Normally this would be something like the following:

/usr/bin/php -f /home/your_user/public_html/pbmonitor/monitor_1.php

If you want to disable the notifications for the cronjob, you can add the following string at the end of your command:

>/dev/null 2>&1

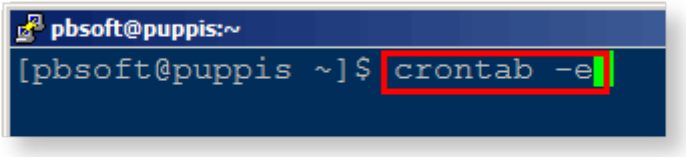
Then press the button "**Add New Cron Job**" to save and activate the cronjob:



Now your cronjob should start the PBmonitor starter file all 5 minutes and the starter file then should trigger the monitoring process depending on how you configured the frequency in your configuration file (15 minutes is a good choice).

9.2 Add a Cronjob via Terminal

If you don't have an administration panel to add cronjobs you can add them in a terminal session. To create your own crontab file enter "**crontab -e**" into the terminal:



The file will be opened (or created if it does not exist) and you will see the content with the already installed cronjobs. Then you have to add a new line for your cronjob with the following content:

***/5 * * * path/to/php -f /path/to/pbmonitor/monitor_1.php**

You also can add the following string after your command if you don't want to receive the notification messages from the cronjob:

>/dev/null 2>&1

Then save the crontab file and your cronjob should run!

9.3 Troubleshooting Cron

Sometimes adding a cronjob can be tricky! Here are some hints on how to find the problem.

Check Paths

If the cronjob is not working make sure you entered the correct paths for the **PHP interpreter** and the **PBmonitor starter script**.

Execute in Terminal

You can also try to execute the cron command directly from the command line and see if there is an error message or everything runs smooth. If you see nothing try the next step.

Check Cron Daemon

Enter the following command into the terminal to see if the cron daemon is running:

```
ps -ef | grep cron | grep -v grep
```

You should see something like the following as output:

```
root    1224   1  0 Nov16 ?    00:00:03 cron
```

Redirect Cron Output

To direct the cron output to a file you can add the following string to the end of your command line (you have to remove the string for not receiving the e-mail notifications):

```
&>/tmp/cron_output.log
```

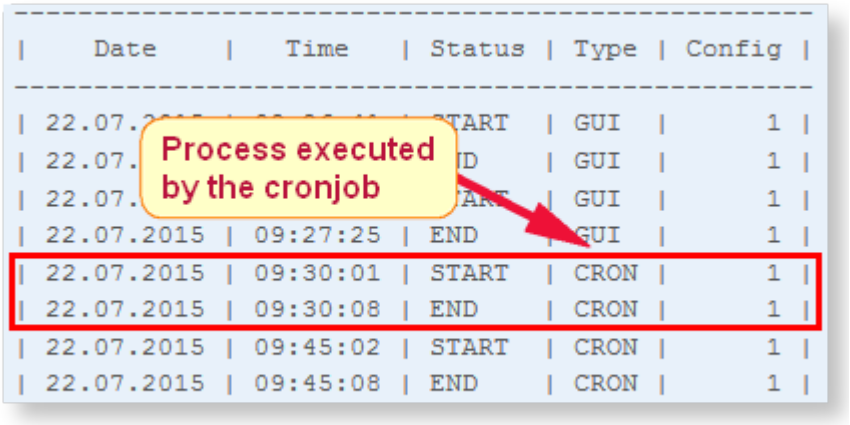
Now you can check the file "**/tmp"cron_output.log**" and see if there are some errors with useful information about the problem.

Check Permissions

It's also possible that there is a permission problem and the user under which the cron is running has no access to the PHP interpreter or the script file. Executing the command in the terminal then should display an error message.

Check Process Log

If you want to see if the cronjob was executed correctly, you can also check the "**Process Log**" from the PBmonitor user interface:



Date	Time	Status	Type	Config
22.07.		START	GUI	1
22.07.		D	GUI	1
22.07.		ART	GUI	1
22.07.2015	09:27:25	END	GUI	1
22.07.2015	09:30:01	START	CRON	1
22.07.2015	09:30:08	END	CRON	1
22.07.2015	09:45:02	START	CRON	1
22.07.2015	09:45:08	END	CRON	1

You should see two lines which indicate when the process was started and when it was ended. If you see both entries, the cronjob was successful.

10 Advanced Configuration

The PBmonitor system configuration can also be customized. Therefore the different settings will be explained on the following pages.

10.1 Timezone

```
// ============================================================================
// Please specify the default timezone.
// ============================================================================
//
// If the timezone is not defined in your PHP configuration file, you
// can specify it with the following setting:
//
//  date_default_timezone_set('UTC');
//
// You have to uncomment the setting and enter your preferred timezone.
// For a list of available timezones check the following link:
//
//   http://www.php.net/manual/en/timezones.php
//
// Normally it is easier to specify the default timezone in the PHP
// configuration file 'php.ini'. You have to add the following lines to
// the configuration file:
//
//   [Date]
//   date.timezone = UTC
//
// You then can replace 'UTC' with your own timezone.
//
// ============================================================================
date_default_timezone_set('Europe/Zurich');
```

You can specify your timezone which you want to use for the PBmonitor application. You will find more information on how to set the timezone for your region in the PHP manual:

PHP manual timezone settings

You will see which timezone string you have to enter for your country. The following example shows a part of the the page for the Americas:

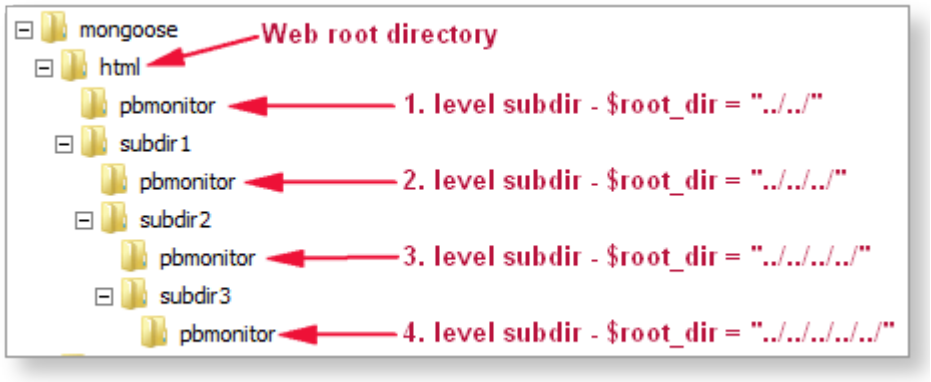
America/Campo_Grande	America/Cancun
America/Cayman	America/Chicago
America/Costa_Rica	America/Creston

If you live in Chicago, you would have to enter the timezone string "**America/Chicago**" and replace the existing default timezone string "**Europe/Zurich**".

10.2 Root Directory

```
// ============================================================================
// Specify the directory to start scanning for displaying the start
// and exclude directory list.
// ============================================================================
$root_dir = "../../";
```

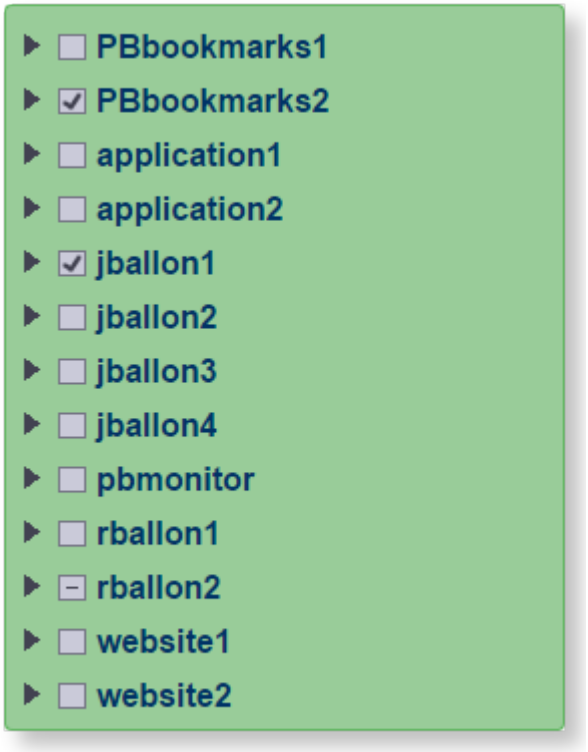
If you install the PBmonitor in a subfolder of the web root directory you have to accommodate this setting so that the application can find the directories to scan. For each level of subfolder you have to add "**../**" to the path like illustrated on the following image:



10.3 Display Start Tree

```
// ================================================================================
// Display the directory tree to specify the start directories.
// ================================================================================
$display_start_tree = 1;
```

If you want to use the green selection tree (start directories) in the configuration editor you have to enable this setting. Normally this is the case and per default this setting is enabled.



10.4 Maximum Start Tree Levels

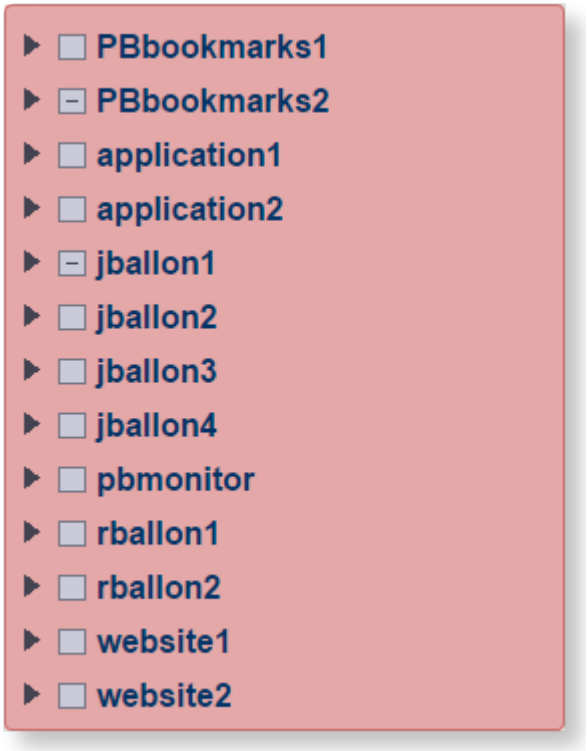
```
// ================================================================================
// Specify the maximum start directory tree levels.
// ================================================================================
$max_start_tree_level = 3;
```

This setting specifies how many levels should be displayed in the green selection tree (start directories). If you have a lot of files you should limit the depth of the directory tree to speed up the page loading time. Per default 3 levels are displayed.

10.5 Display Exclude Tree

```
// ============================================================================
// Display the directory tree to specify the exclude items.
// ============================================================================
$display_exclude_tree = 1;
```

If you want to use the red selection tree (exclude directories) in the configuration editor you have to enable this setting. Normally this is the case and per default this setting is enabled.



10.6 Maximum Exclude Tree Levels

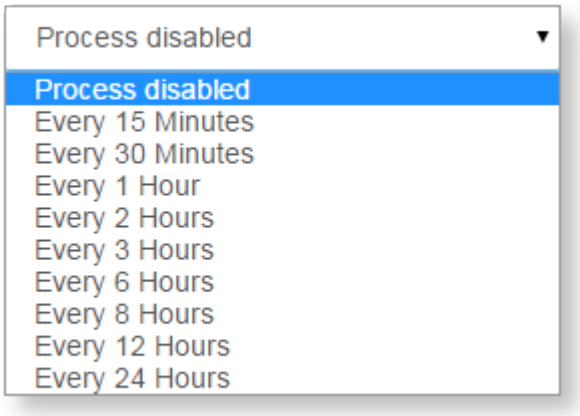
```
// ============================================================================
// Specify the maximum exclude directory tree levels.
// ============================================================================
$max_exclude_tree_level = 3;
```

This setting specifies how many levels should be displayed in the red selection tree (exclude directories). If you have a lot of files you should limit the depth of the directory tree to speed up the page loading time. Per default 3 levels are displayed.

10.7 Process Frequency

```
// ================================================================
// Display the processing frequency dropdown list.
// ================================================================
$display_proc_freq_dropdown = 1;
```

If you want to use the dropdown list to choose the frequency on which the monitoring process runs, this setting has to be enabled.



10.8 Username / Password

You can also change the username and password for the administration panel of PBmonitor. Please refer to the installation section where those steps are explained.

10.9 Password Salt

```
// ================================================================
// Specify the password salt.
// ================================================================
$password_salt = "DTVL7Jn7OrS*xR685jF945NEYz-J_p2zJBJEA8+Z";
```

Here you can change the used password salt string, which is a good idea. Just enter a new string and replace the existing one. After changing the salt, you have to generate a new password. This procedure is explained in the installation section of this user manual.

10.10 Send only Cron E-Mails

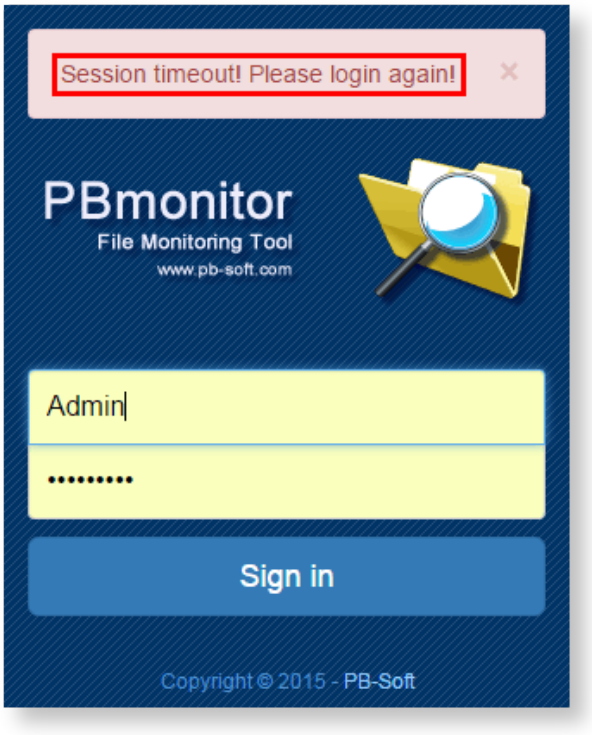
```
// ========================================================================
// Specify if emails only should be sent if the proccess was run by a
// cronjob (or something similar).
// ========================================================================
$send_only_cron_emails = 1;
```

Here you can specify if e-mail alerts are sent only if the monitoring process was started automatically by a cronjob (or something similar). If you start the process manually from the PBmonitor administration panel, no alerts will be sent. Per default this setting is enabled.

10.11 Session Timeout

```
// ========================================================================
// Specify the session timeout in minutes. If the timeout is set to
// zero, it will be disabled.
// ========================================================================
$session_timeout = 15;
```

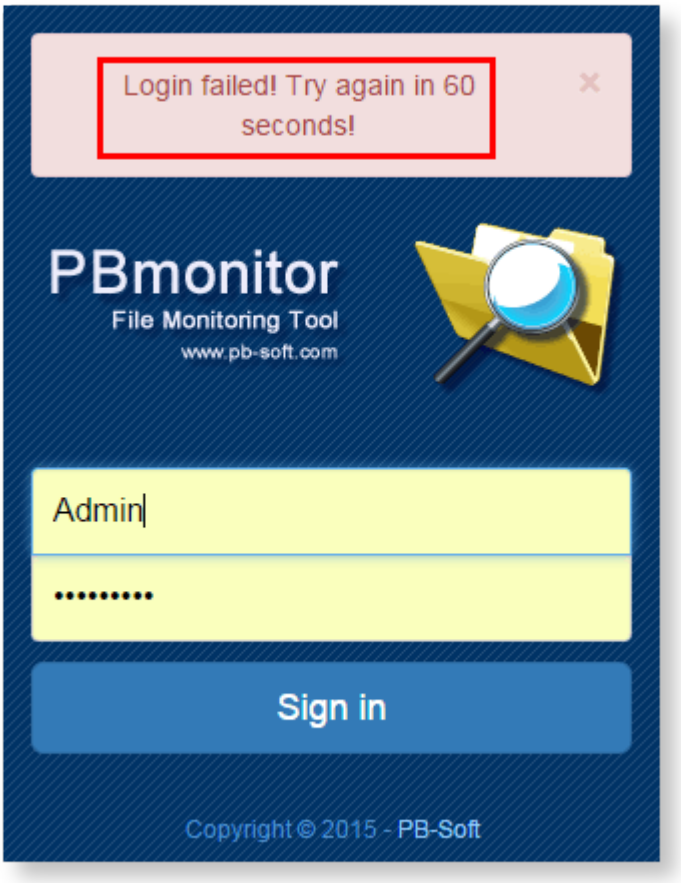
Here you can specify the duration of an inactive session. Per default this is set to 15 minutes but you can change it to your needs. After a timeout you will be logged out like on the following image:



10.12 Login Delay

```
// ================================================================
// Specify the login delay in seconds.
// ================================================================
$login_delay = 60;
```

This setting specifies the login delay after a user made a failed login. Per default this setting is set to 60 seconds. The first time a user enters a wrong password he has to wait 60 seconds before he can login again. If the second login also fails he has to wait twice the time, in this case 120 seconds. The third time 240 seconds and so on (the delay doubles every time)...



10.13 Additional Information / Settings

Below there are some settings to specify application parameters like names, versions and links or also some debug settings. This information does not have to be changed for the normal operation of the PBmonitor application.

11 Securing PBmonitor (Optional)

There is a small tool of two scripts which can monitor the PBmonitor files from outside the application directory and alert if someone (or something like a script) is changing the scanning engine or the configuration itself. You will find the two scripts inside the directory "**pbmonitor/tools**" and you should copy them to different locations for making it difficult for a intruder to find them. On the following pages you will see how to install, configure and use this tool.

Installing this tool is fully optional and the PBmonitor application will also work without this tool!

In the configuration section of the script you will see that per default there are five different files specified for monitoring. All of those files are necessary for the PBmonitor application to monitor the files on your host (without the graphical user interface):

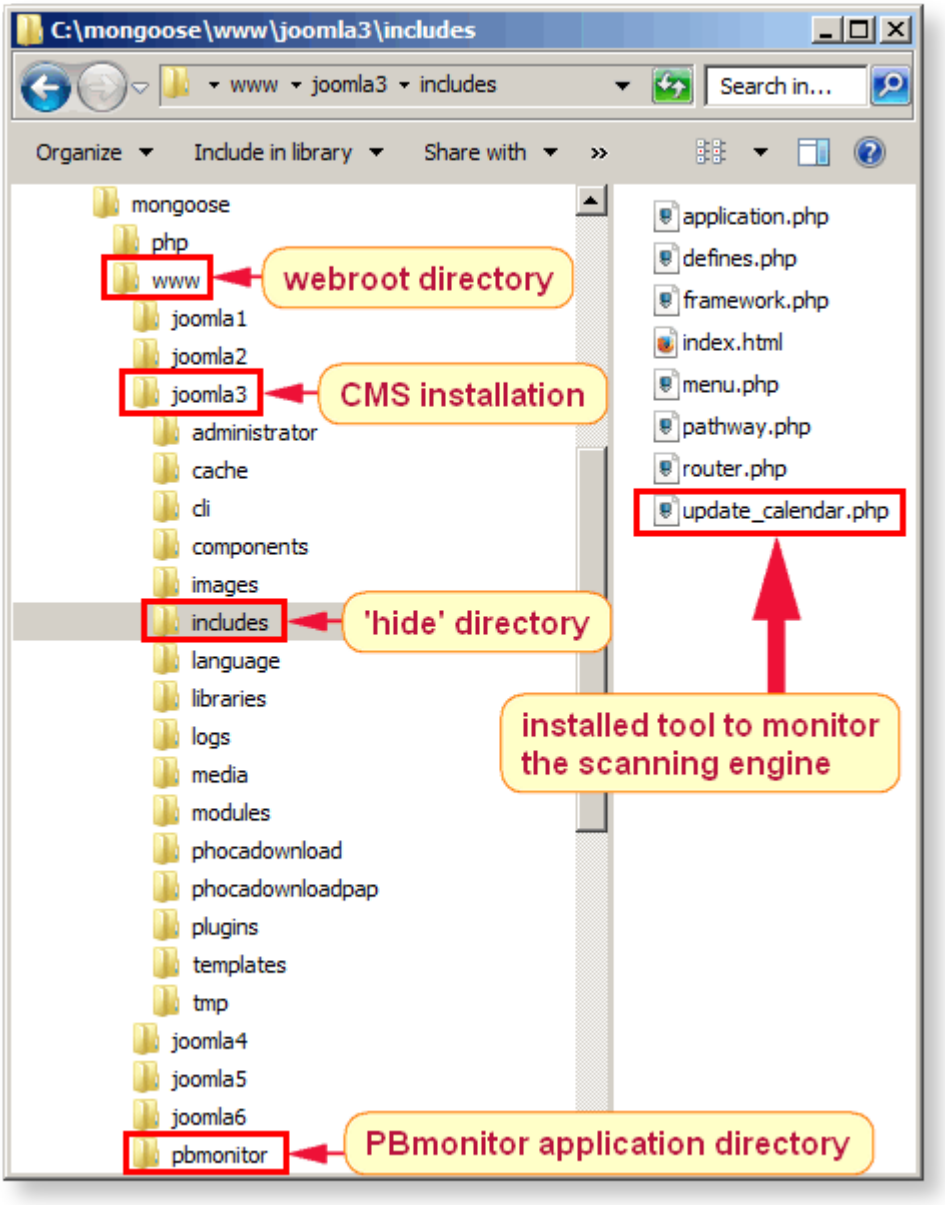
```
$check_file[] = "monitor_1.php";
$check_file[] = "config/config_1.php";
$check_file[] = "config/system_config.php";
$check_file[] = "include/function.php";
$check_file[] = "include/pbmonitor.php";
```

This tool/script will also detect if someone (including you) makes changes to the configuration file. Therefore you should configure and enable this tool only after you have finished editing and changing your PBmonitor configurations.

If you change your PBmonitor configuration after you have enabled this security tool, you have to renew the reference hash in the configuration section of the script, because the script can not check **who** has changed the configuration, it can only get the information **that** the configuration file (or another of the monitored files) was modified.

11.1 Installation

The main script "**update_calendar.php**" should be placed/hidden in another subfolder of your webroot directory like in the following example. Here the script is hidden inside the directory of a Joomla CMS installation and inside the subdirectory "**includes**":



The names of the two scripts are kind of random and can be renamed to whatever you want. Just choose a name which does not indicate an intruder that the script is monitoring something :-)

It is not very important where it is placed but it should be in a subdirectory to be kind of hidden.

The second script "**update_task.php**" has to be installed in the web directory or a subdirectory of it on another webhost. The URL to this script will be specified in the configuration of the main script called "**update_calendar.php**".

To run the main script, a cronjob has to be created which runs all 5, 10 or 15 minutes (you can choose any frequency to run the script). Please refer to the section "**Scheduling with Cron**" for more information on how to install a cronjob.

11.2 Configuration

After both scripts are installed (copied) please open the main script "**update_calendar.php**" in your favorite text editor. At the top there is a configuration section which has to be updated:

Timezone

```
// ============================================================
// Please specify the default timezone.
// ============================================================
$timezone = "Europe/Zurich";
```

Please enter your timezone. Please also check the Section "**Advanced Configuration**" for how to enter the default timezone.

Host ID

```
// ============================================================
// Please specify an ID or name for this host.
// ============================================================
$host_id = "My Host";
```

Here you should enter a unique name or ID for your host. This will identify the host in the alert e-mails. If you have more than one monitored host you will know from which one the alert was sent.

Application Path

```
// ==========================================================
// Please specify the path to the PBmonitor directory.
// ==========================================================
$application_path = "../../pbmonitor";
```

This is the most important setting and has to contain the path from this script to the PBmonitor application directory. In this example we have to go up two directory levels and then enter the directory "**pbmonitor**".

Curl Script

```
// ==========================================================
// Please specify the cURL script on another host.
// ==========================================================
$curl_script = "http://example.com/update_task.php";
```

This setting specifies the URL to the script "**update_task.php**" which has to be installed on another host from which it is possible to send e-mails. If you don't have another host you have to leave this setting empty like in the following example:

```
$curl_script = "";
```

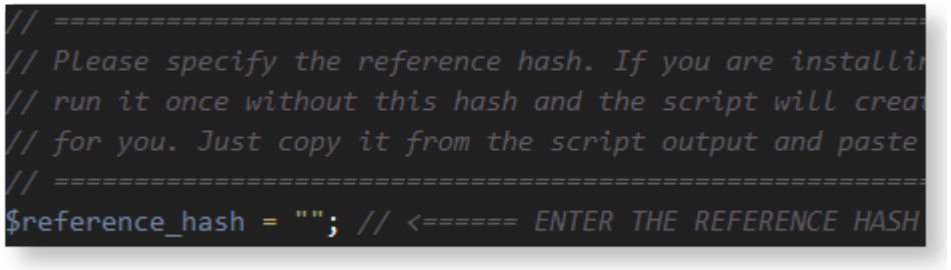
Files to Check

```
// ==========================================================
// Please specify the used files.
// ==========================================================
$check_file = array();
$check_file[] = "monitor_1.php";
$check_file[] = "config/config_1.php";
$check_file[] = "config/system_config.php";
$check_file[] = "include/function.php";
$check_file[] = "include/initialization.php";
$check_file[] = "include/pbmonitor.php";
```

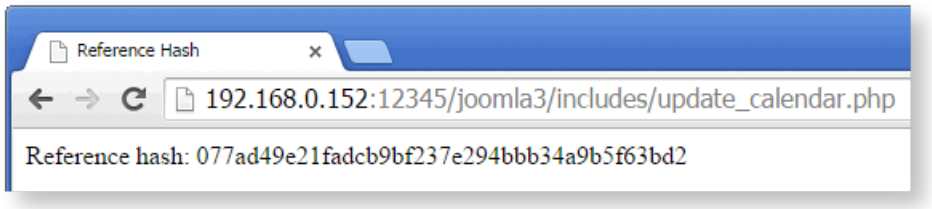
This array will specify the files to check. These are all necessary files for running the monitoring process from a cronjob.

If those files are OK the cronjob can run and monitor all the other files on the host. This setting normally does not have to be changed because the default values are the correct ones.

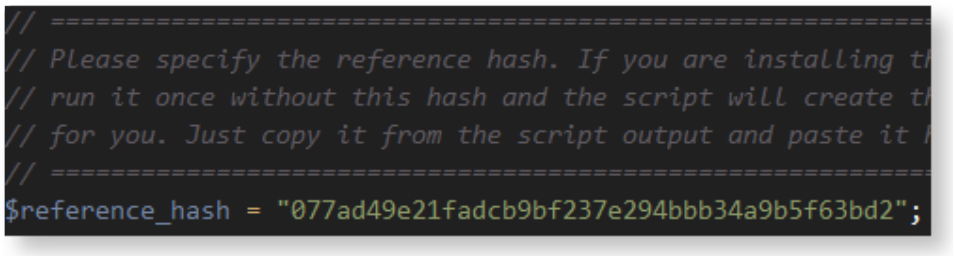
Reference Hash


// ==========
// Please specify the reference hash. If you are installi
// run it once without this hash and the script will creat
// for you. Just copy it from the script output and paste
// ==========
$reference_hash = ""; // <====== ENTER THE REFERENCE HASH

This setting has to contain the reference hash which is used to check if the files of the scan engine were not modified. Please configure the rest of the file and leave this setting empty. After you have configured the remaining settings, please call this script from your favorite webbrowser to obtain the reference hash. You have to enter the URL of this script in your webbrowser like in the following example:



If you enter the correct URL to the script you will see the reference hash displayed on your screen. Now just copy the hash and paste it into the configuration part of the script and save the file. There is no default value for this setting:


// ==========
// Please specify the reference hash. If you are installing th
// run it once without this hash and the script will create th
// for you. Just copy it from the script output and paste it
// ==========
$reference_hash = "077ad49e21fadcb9bf237e294bbb34a9b5f63bd2";

E-Mail Width

```
// ============================================================
// Specify the total line width for the emails (in charac
// ============================================================
$line_total = 70;
```

Here you can set the width of the alert e-mails which will be sent by PBmonitor and will specify the width of the "====" bars used to show the information in the e-mails. The default value is set to 70 characters. Normally you don't have to change this setting.

E-Mail Sender

```
// ============================================================
// Specify the email address of the sender.
// ============================================================
$email_sender = "admin@example.com";
```

Here you can enter the sender e-mail address of the alert e-mails. This sender will be visible to the e-mail receivers. If your host is sending this e-mails, you could maybe use the sender address "**admin@yourdomain.com**".

E-Mail Recipients

```
// ============================================================
// Please specify the e-mail recipients.
// ============================================================
$email_recipient = array();
$email_recipient[] = "john.doe@example.com";
$email_recipient[] = "jane.brooks@gmail.com";
```

Here you can specify the e-mail addresses of the recipients of the alerts. For every recipient you have to use a new line. As default there are two example addresses specified. Replace them with your own e-mail addresses.

Debug Mode

```
// ======================================================
// Please specify if the debug mode is enabled.
// ======================================================
$debug_mode = 1;
```

This setting is used to install and test the script and will also send e-mail alerts if you start the script via browser. If the "**debug mode**" is disabled later, e-mails are only sent if the script is started from a cronjob. Please don't forget to disable the "**debug mode**" after testing testing the script!

Disable Check

```
// ======================================================
// Please specify if the tool should be disabled.
// ======================================================
$disable_check = 0;
```

With this setting you can disable the tool if you enter the value 1. As default the script is nod disabled (value 0). If you disable the script, you do not have to disable the corresponding cronjob because the cronjob can execute this script all couple of minutes but the script will not do anything until you enable it again.

11.3 Running the Tool

If you have installed and configured the script like stated in this manual, you only have to start the cronjob and let it run. All couple of minutes (depending on how you scheduled your cronjob) the main script is executed and will do the following steps:

First: The script loops through all the specified files from the scanning engine and creates a unique hash out of all the different filenames, paths, and file contents.

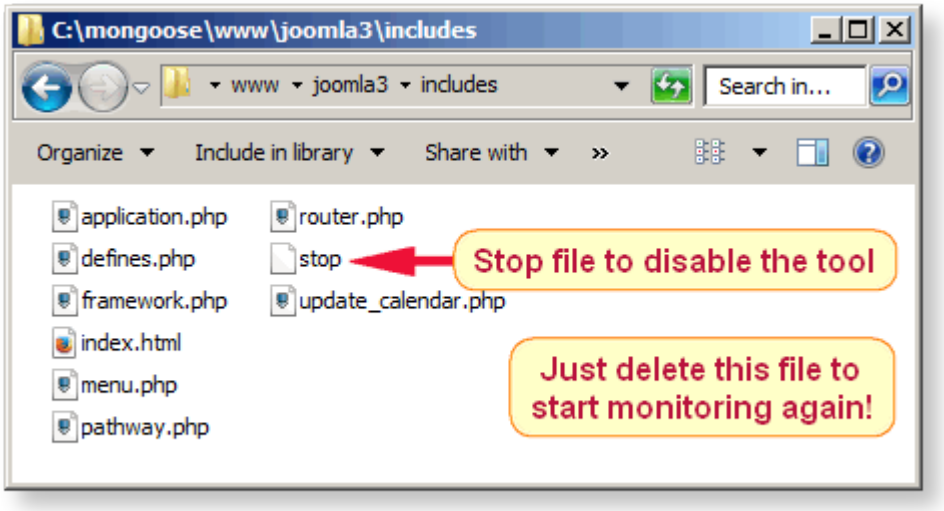
Second: Then the script will compare the newly generated hash against the reference hash which is stored in the configuration section of the script.

Third: If the two hashes match, everything is OK and the script will exit and wait until it is called again by the cronjob.

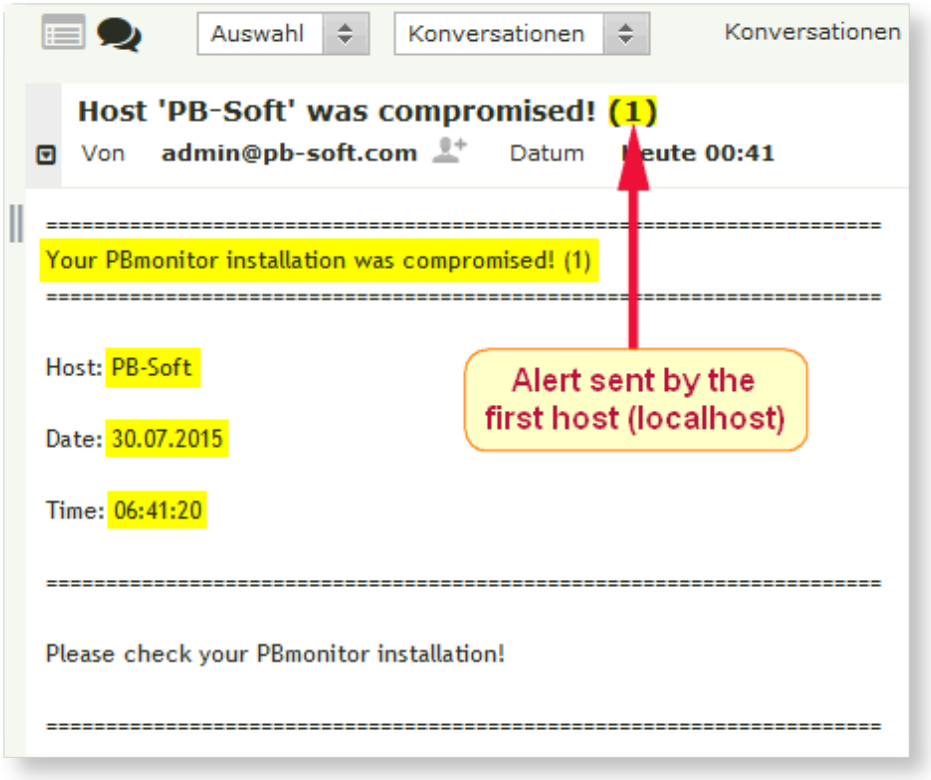
Fourth: If the two hashes do not match, the files were altered and the script will send an alert e-mail to all specified recipients.

Fifth: In addition the script will send all the necessary information to the second script which is installed on a remote host and this script will send another e-mail alert to each of the recipients. This is necessary because if the e-mail sending was disabled on the local host the second host will send the alert e-mails.

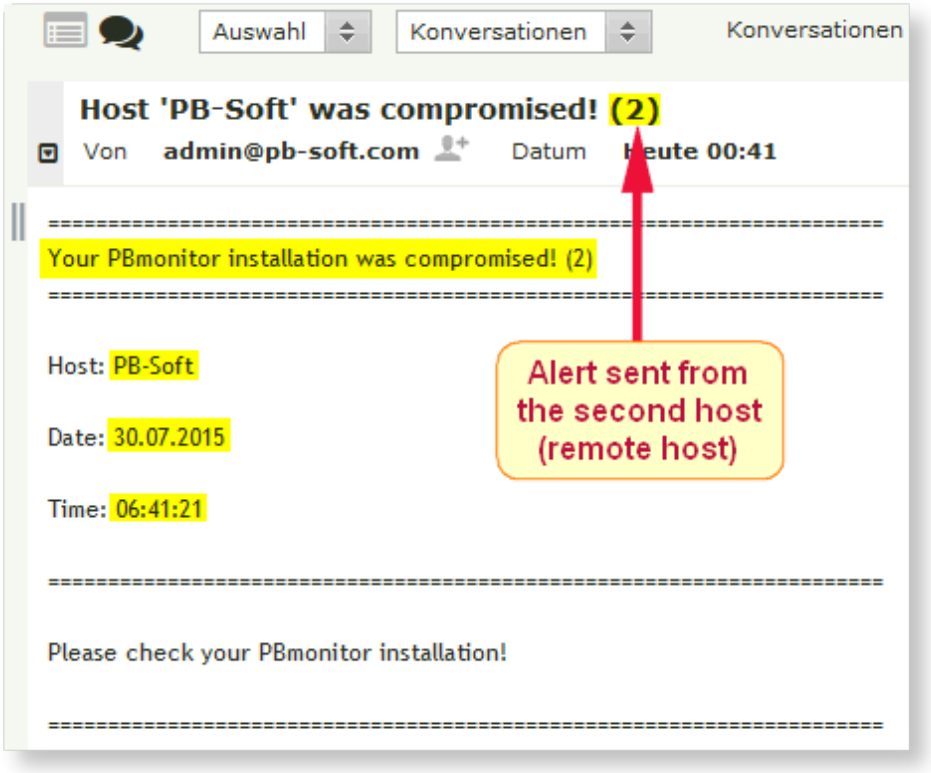
Sixth: After the script has sent the e-mails, it will disable itself. If the script would be enabled, it would send alerts all couple of minutes. To disable the script, a file called "**stop**" will be created in the same directory. If you want to start the script again, just delete the "**stop**" file. Then the script will start monitoring like before.



Here you can see an example of the e-mail alert sent by the first host (localhost where the main script is installed):

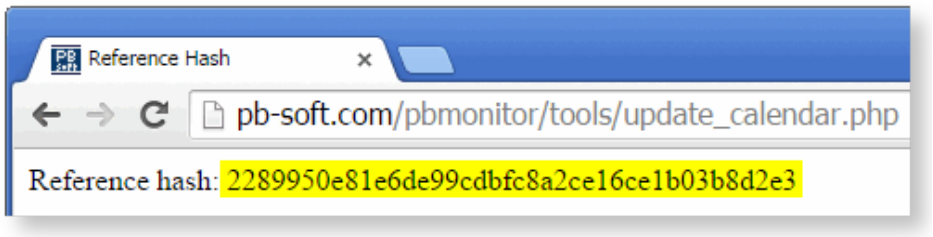


This is the e-mail alert from the remote host:

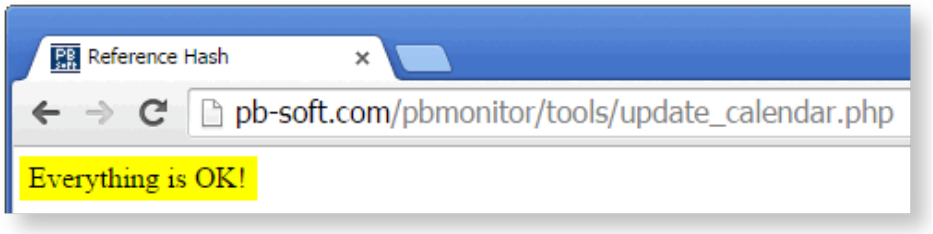


11.4 Testing the Installation

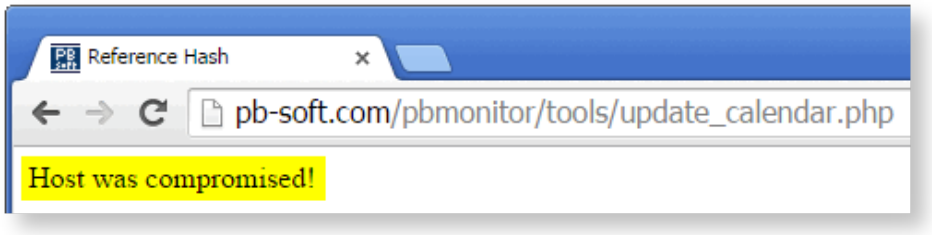
To test the installation just execute the main script from your webbrowser ("**update_calendar.php**"). If you don't have specified the reference hash you will see the hash displayed on the screen:



If you entered the reference hash and execute the script, the message "**Everything is OK!**" will be displayed:



Now if you change one of the specified files (adding a coma inside or rename the file) the message "**Host was compromised!**" will be displayed:



If the "**debug mode**" enabled, you should get two e-mail alerts (one from the first host and one from the second host). Please check your e-mail inbox!

With this "experiments" you can test if everything works like it should. After testing you should disable the "**debug mode**" because then no e-mails will be sent if you access the script from your webbrowser. Only if the script is executed by a cronjob (or something similar) the alerts will be sent.

12 Customizing PBmonitor

There are different ways to customize the PBmonitor application. The easiest way is to change the CSS styles and change the colors or fonts. On the following pages this will be explained:

12.1 Modify CSS Styles

The PBmonitor application contains CSS styles to specify the look of the HTML output. You can edit this CSS specifications and change them. If you want to edit the CSS styles, please open the stylesheet "**pbmonitor.css**" from the source folder in your favorite text editor. If you don't have a good text editor, you may try the free text editor **Notepad++** or **PSPad**.

The PBmonitor styles are separated into different sections. Each section specifies the settings for a specific component. The description of each section shows for which component(s) the settings are. Here you can see an example of a description:

```
/* ================================================
// This is an example description.
// ================================================*/
```

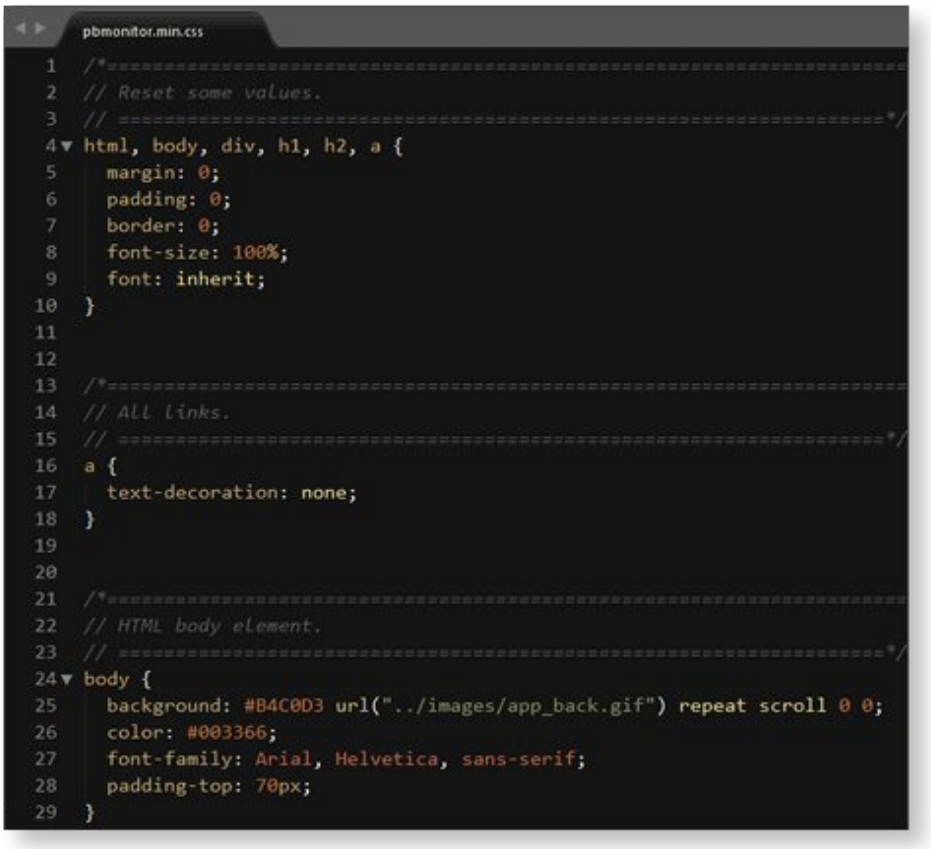
Below each of the the descriptions, a group of settings are placed. Here you can see such a group of settings:

```
body {
  background-color: #C3D4E3;
  color: #003366;
  font-family: Arial, Helvetica, sans-serif;
  font-weight: bold;
}
```

Each of the settings consist of the "**settings-name**" and the "**settings-value**". They are separated by a colon "**:**". At the end of each setting, a semicolon "**;**" character is needed to separate it from the next setting. In the following example "**font-weight**" is the name and "**bold**" is the value:

```
font-weight: bold;
```

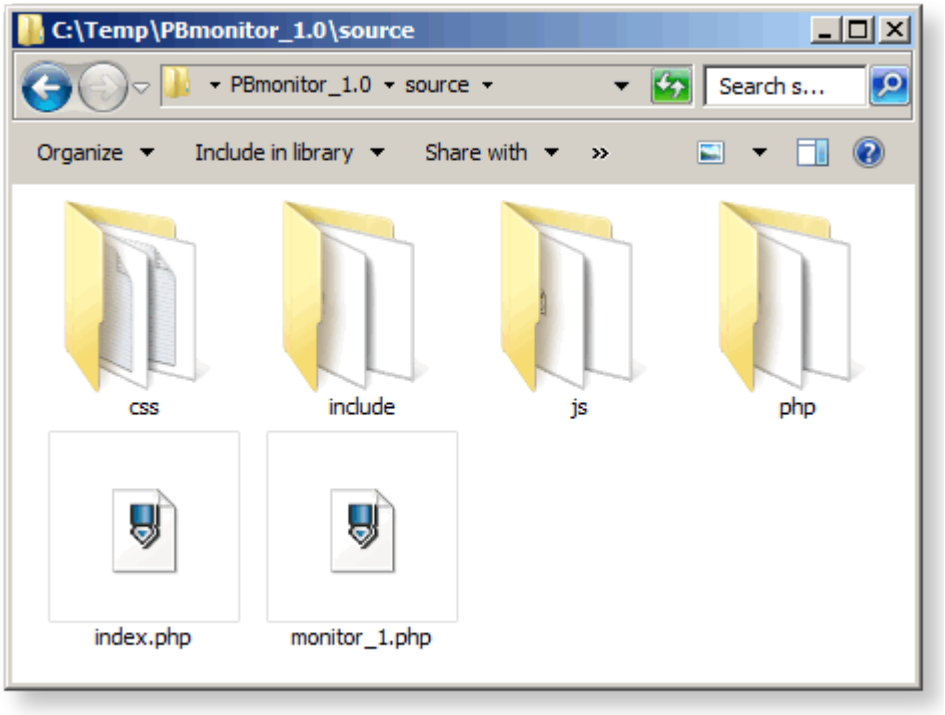
Here you can see an example from the CSS file "**pbmonitor.css**":



If you want to know more about HTML and CSS you can visit the **HTML Dog Website** where you can find a lot of information. There you will find also a **CSS Tutorial for Beginners**.

12.2 Minify HTML, CSS and JavaScript Files

As default, the minified versions of the PHP, CSS and JavaScript files are used in the upload folder "**pbmonitor**". If you want to see or modify the source code for your own use, you can find the files in the directory "**source**":



After you made your changes you can minify these files with one of the following two free tools:

For CSS and JavaScript code the "**Microsoft Ajax Minifier**"

For HTML code the "**htmlcompressor**"

There are a lot of other tools around, so feel free to use whatever you like!

Be sure to always use a copy of the original files and NEVER minify the original files!

13 Support

If you have a question or a problem while installing or using PBmonitor, please contact us - we are always glad to help you!

You can contact us using the following methods:

Website: **www.pb-soft.com**

E-Mail Address: **support@pb-soft.com**

14 Feedback

We always like feedback from you so that we can improve our products. If you think there is something missing or there is an error in this manual, please contact our support so we can add the missing information or fix the error in the manual!

Thank you a lot for your attention and have a nice day!

Patrick Biegel